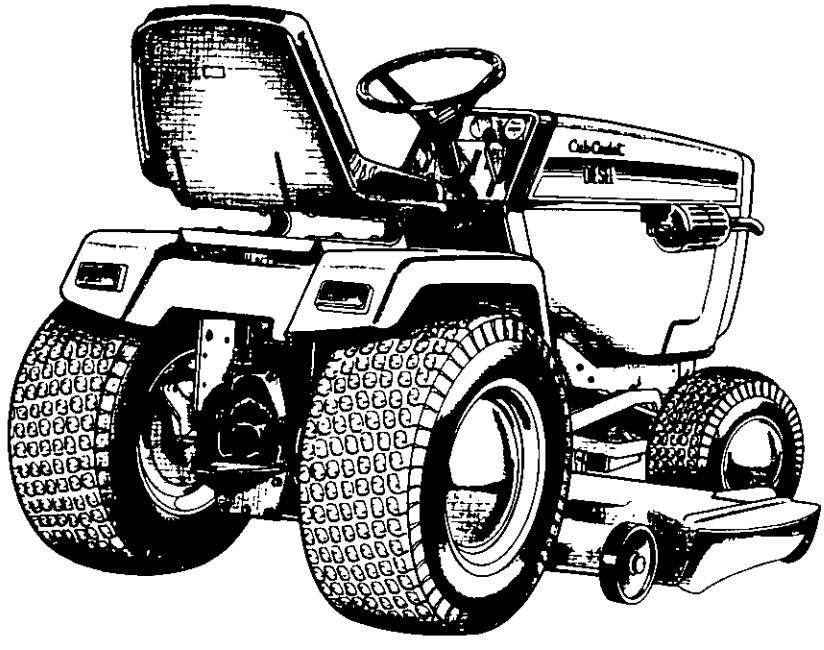
Cub Cadet®

Power Equipment

Owner's Manual

DIESEL TRACTOR



Model Number
1772

Important:
Read Safety Rules and Instructions Carefully

Thank you for purchasing an American-built product.

CUB CADET CORPORATION • P.O. BOX 360930 • CLEVELAND, OHIO 44136

PRINTED IN U.S.A.

FORM NO. 772-4007

Cub Cadet Corporation's Promise To You

We promise you, the first user purchaser, that we will replace or repair any part or parts of your new outdoor power product which is defective in material or workmanship without charge for either parts or labor during the first year following delivery to you.

We also promise you, the first user purchaser, a second year warranty on the engine and drive train of your new *Cub Cadet* Tractor, Lawn Tractor or Riding Tractor.

What the second year covers

(A) It will cover the engine internal parts contained within the engine shielding except for points, condensers, spark plugs, air filters, oil filters, and routine maintenance parts.

(B) It will cover the tractor drive train including drive shafts, drive shaft clutch, all parts enclosed by transmission housing, and axle housing, axle shafts, final drives, spindle pulleys, spindle bearings, and electric PTO clutch.

Home Maintenance Products: We promise you, the first user purchaser, a 1 year warranty on all Home Maintenance Products. This will cover Push Mowers, Self Propelled Mowers, Utility Trailers, Walk Behind Tillers, Chore Performers and Snow Throwers.

The Tecumseh engine, used on Walk Behind Snow Throwers, will carry a 2 year warranty on the engine only.

Cub Cadet Attachments:

We promise you, the first user purchaser, that we will replace or repair any part or parts which are defective in material or workmanship without charge for parts or labor during the first year following delivery to you. This will cover all *Cub Cadet* attachments. This does not include Approved Allied Equipment which is sold and warranted directly by the manufacturer.

Obtaining Warranty Service Through *Cub Cadet* Dealers

Warranty repairs will be made by your selling *Cub Cadet* dealer or any *Cub Cadet* dealer authorized to sell the type of equipment involved during the normal working hours of the dealer service department. You, the purchaser, are responsible for transportation of the equipment to the dealership for warranty service or for any service call expense, along with any overtime labor you request.

Replacement Parts Warranty

Cub Cadet parts which are furnished and installed under this warranty are themselves within the coverage of this warranty for the duration of the original warranty period or for ninety days after installation, whichever period shall expire last.

Cub Cadet
Power Equipment

What is not Covered

Tires and tubes are not covered by this warranty, but are warranted by their manufacturer. Regular maintenance replacement items such as spark plugs, ignition points, condensers, belts, cutting parts, filters and lubricants, and maintenance adjustments such as fuel system cleaning, engine tune-up, brake and/or clutch inspection or adjustment, when such replacement or adjustments are made as part of normal maintenance service are excluded from coverage. Any non-Cub Cadet product which you may have installed in or upon the product is also excluded.

No person is authorized to give any other warranty or to assume any other liabilities on the Company's behalf unless made or assumed in writing by the Company, and no person is authorized to give any warranties or to assume any liabilities on the seller's behalf unless made or assumed in writing by the seller.

Limitations On Our Responsibility

Please carefully note that this is a two-way agreement. We promise to make free repairs or replacements as stated, but you agree, that except for our obligation to make good on this promise, we shall not be responsible for any expenses or inconvenience which you might incur or experience with respect to our product, nor shall we be liable for defects, damage, or failures caused by unauthorized alterations, unreasonable use, accident or abuse, including failure to provide reasonable and necessary maintenance, after our product has been delivered to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Personal Use

The foregoing paragraphs constitute *Cub Cadet* Corporation's entire warranty with respect to any product purchased and used for personal, family, or household purposes as distinguished from commercial usage.

Commercial Use:

All *Cub Cadet* products will be warranted against defective parts or workmanship. This is for *Cub Cadet* Tractor, Attachments and Home Maintenance products and for one year only.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE EXCLUDED, AS ARE ALL OTHER REPRESENTATION TO THE USER-PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES, INCLUDING LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES, ON THE PART OF THE COMPANY OR THE SELLER.

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Instructions given with this symbol are for personal safety. Be sure to follow them.

WARNING

This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester muffler is available at your nearest engine authorized service center.

WARNING

To reduce the potential for any injury, comply with the following safety instructions. Failure to comply with the instructions may result in personal injury.

SAFE OPERATION PRACTICES FOR RIDING VEHICLES

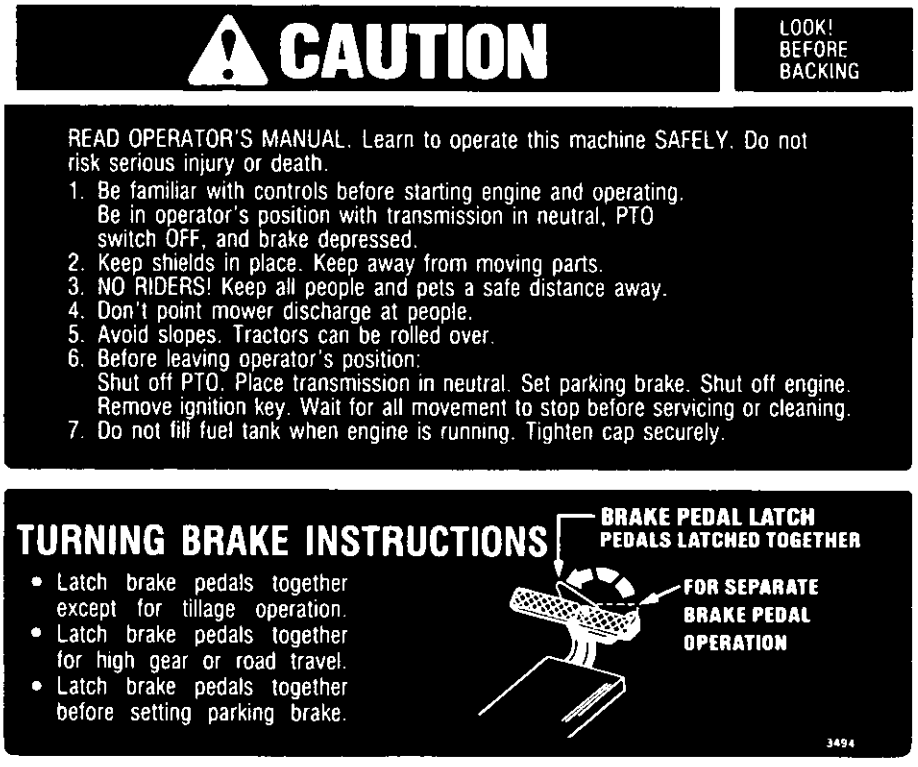
1. Read the owner's manual carefully in its entirety before attempting to assemble or operate this unit. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. This unit is a precision piece of power equipment not a plaything. Therefore, exercise extreme caution at all times.
3. Know the controls and how to stop quickly - READ THE OWNER'S MANUAL.
4. Do not allow children to operate vehicle. Do not allow adults to operate it without proper instruction. Only persons well acquainted with these rules of safe operation should be allowed to use your mower.
5. No one should operate this unit while intoxicated or while taking medication which impairs the senses or reactions.
6. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts to avoid entanglement in the moving parts. Never operate a unit in bare feet, sandals, or sneakers.
7. To prevent injury, do not carry passengers or give rides. Keep children, pets and bystanders out of the area while mowing. Only the operator should ride on the unit and he/she should ride only in the seat.
8. Check overhead clearance carefully before driving under power lines, guy wires, bridges or low hanging tree branches; before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit. Such negligence could result in serious injury.
9. To maintain control of the unit and reduce the possibility of upset or collision, operate the tractor smoothly. Avoid erratic operation and excessive speed.
10. Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower. Although the area of operation should be completely cleared of

foreign objects, a small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury.

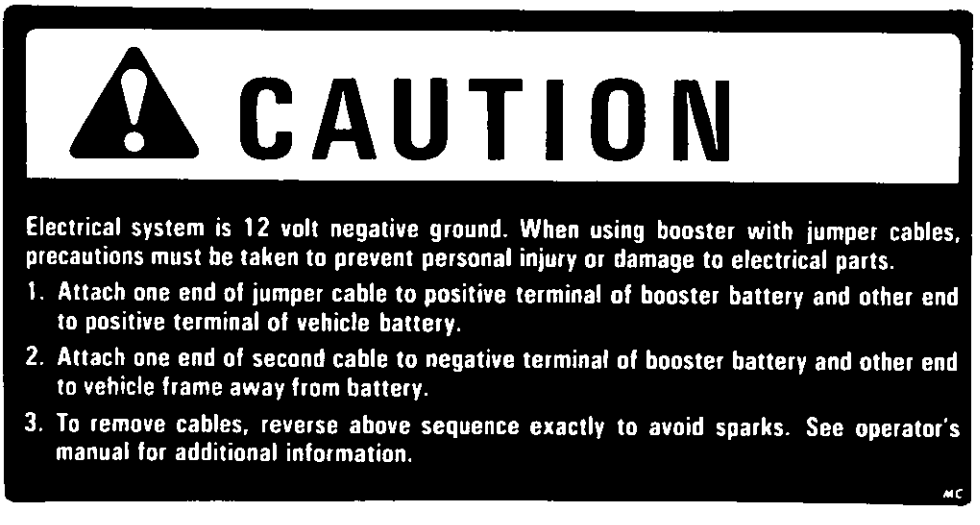
11. Clear work area of objects which might be picked up and thrown in any direction by the mower and cause injury.
12. Stop the blade(s) when crossing gravel drives, walks or roads.
13. Disengage all attachment clutches and shift into neutral before attempting to start engine.
14. Disengage power to attachment(s) and stop engine before leaving operating position.
15. Do not put hands or feet near or under rotating parts. Stay clear of the discharge opening at all times as the rotating blade(s) can cause injury.
16. Disengage power to attachment(s) and stop engine before making any repairs or adjustments. Disconnect the spark plug wire(s) and keep the wire(s) away from the plug to prevent accidental starting.
17. Before attempting to unclog the mower or discharge chute, stop the engine. The mower blade(s) may continue to rotate for a few seconds after the engine is shut off. Therefore, be sure the blade(s) have stopped completely. Disconnect the spark plug wire(s) and keep the wire(s) away from the plug to prevent accidental starting.
18. Disengage power to attachment(s) when transporting or not in use.
19. Take all possible precautions when leaving vehicle unattended such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
20. Do not stop or start suddenly when going uphill or downhill. Mow up and down face of steep slopes; never across the face. Use extreme caution if it is necessary to drive the tractor up an incline or back the tractor down an incline because the front of the tractor could lift and rapidly flip over backward which could cause serious injury.
21. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Always keep the tractor in gear when going down steep hills to take advantage of engine braking action.
22. Stay alert for holes in terrain and other hidden hazards.
23. Use care when pulling loads or using heavy equipment.
    A. Use only approved drawbar hitch points.
    B. Limit loads to those you can safely control.
    C. Do not turn sharply. Use care when backing.
    D. Use counterweight(s) or wheel weights when suggested in owners's manual.
24. Watch out for traffic when crossing or near roadways.
25. When using any attachments, never direct discharge of material toward bystanders. Do not allow anyone near vehicle while in operation.
26. Handle fuel with care. It is highly flammable.
    A. Use approved fuel container.
    B. Never remove cap or add fuel to a running or hot engine or fill fuel tank indoors. Wipe up spilled fuel.
    C. Open doors if engine is run in garage. Exhaust fumes are dangerous. Do not run engine indoors.
27. Keep the vehicle and attachments in good operating condition, and keep safety devices in place. Use guards as instructed in operator's manual.
28. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
29. Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
30. To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
31. The vehicle and attachment should be stopped and inspected for damage after striking a foreign object. The damage should be repaired before restarting and operating the equipment.
32. Do not change the engine governor settings or overspeed the engine.
33. When using the vehicle with mower, proceed as follows:
    A. Mow only in daylight or in good artificial light.
    B. Never make a cutting height adjustment while engine is running if operator must dismount to do so.
    C. Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher.
    D. Check blade mounting bolts for proper tightness at frequent intervals.
34. Check grass catcher bags frequently for wear or deterioration. For safety protection, replace only with new bag meeting original equipment specifications.
35. Look behind to make sure the area is clear before placing the transmission in reverse and continue looking behind while backing up. Disengage blades before shifting into reverse and backing up.
36. This unit should not be driven up a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually to load properly.

PRODUCT GRAPHICS

Keep safety product graphics (decals) clean. Replace any safety graphic that is damaged, destroyed, missing, painted over or can no longer be read. Replacement safety graphics are available through your dealer.



GENERAL SAFETY INSTRUCTIONS CAUTION – LOCATED ON THE FRAME COVER



CAUTION – BOOSTER BATTERY INSTRUCTIONS LOCATED UNDERSIDE OF HOOD

PRE-OPERATION CHECKLIST

1. Check Oil Level
2. Check Radiator Coolant Level
3. Check Air Cleaner Dust Cap
4. Clean Radiator Screen
5. Fill Fuel Tank with Diesel Fuel
6. Check Transmission Fluid Level

ENGINE OIL REQUIREMENTS

RECOMMENDED OIL

AMBIENT TEMPERATURE	VISCOSITY (GRADE CD)
ABOVE 77 F	SAE 30 OR SAE 10W-30
32 F TO 77 F	SAE 20 OR SAE 10W-30
BELOW 32 F	SAE 10 OR SAE 10W-30

DO NOT USE: SYNTHETIC OIL, NON-DETERGENT OIL OR OTHER NON-RECOMMENDED OILS

DO NOT MIX DIFFERENT BRANDS OF OIL

ENGINE OIL CAPACITY — 98.4 OZ INCLUDING OIL IN OIL FILTER

OIL CHANGE INTERVALS

	OIL	OIL FILTER
INITIAL CHANGE	35 HRS.	35 HRS.
NORMAL CHANGE	100 HRS.	200 HRS.

OIL DIP STICK CHECKS

DIP STICK SHOULD BE CHECKED BEFORE STARTING THE UNIT EVERY TIME

DIP STICK MARKINGS INDICATE UPPER AND LOWER LIMITS AT A COLD OIL CONDITION

NEVER OVERFILL ENGINE OIL

RADIATOR COOLANT MIXTURE

TOTAL COOLANT — 1 GALLON (8 PINTS)

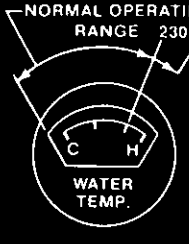
COOLANT CONSISTS OF 50-50 MIXTURE — 50 % WATER, 50 ANTI-FREEZE (ETHYLENE GLYCOL)

NOTE: WATER AND ANTI-FREEZE MUST BE MIXED PRIOR TO FILLING RADIATOR

RADIATOR SCREEN

RADIATOR SCREEN MUST BE CLEANED BEFORE EACH USE AND KEPT FREE OF DEBRIS

NOTE: RADIATOR SCREEN MUST BE CLEANED MORE FREQUENTLY IN DUSTY AND HIGH GRASS CUTTING CONDITIONS. THIS IS TO PREVENT OVERHEATING OF THE ENGINE.



CAUTION: READINGS ABOVE 230 F CAN INDICATE POSSIBLE OVERHEATING OF ENGINE. IF OVERHEATING OCCURS, VAPOR CAN BE SEEN COMING FROM OVERFLOW TUBE.

CHECK THE FOLLOWING:
1. RADIATOR SCREEN
2 COOLANT LEVEL

NOTE: LET UNIT COOL BEFORE REMOVING RADIATOR CAP

GLO-PLUG INSTRUCTIONS

AMBIENT TEMPERATURE	GLO-PLUG INDICATOR LAMP
35 F AND HIGHER	ACTIVATE ONE TIME
34 F AND BELOW	ACTIVATE TWO TIMES

TO ACTIVATE GLO-PLUG INDICATOR LAMP - SEE #3 OF STARTING INSTRUCTIONS.

AIR CLEANER MAINTENANCE

CLEAN AIR CLEANER ELEMENT — EVERY 100 HRS.

CHANGE AIR CLEANER ELEMENT — EVERY 400 HRS. OR 1 YEAR (FOR ELEMENT CLEANING AND REPLACEMENT INFORMATION SEE ENGINE MANUAL)

AIR CLEANER DUST CAP — REMOVE COVER AND CLEAN DUST CAP BEFORE EVERY USE

NOTE: IN DUSTY CONDITIONS CLEAN ELEMENT AND CAP AS OFTEN AS POSSIBLE.

DIESEL FUEL REQUIREMENTS

TEMPERATURE	TYPE
32 F AND ABOVE	#2
BELOW 32 F	#1

NOTE: TYPE #1 & #2 DIESEL FUELS MUST HAVE A CETANE RATING OF 45 AND ABOVE

FUEL TANK CAPACITY — APPROX. 4 GALLONS

WARNING!
NEVER RUN ENGINE OUT OF FUEL

TRANSMISSION FLUID

TRANSMISSION FLUID — CUB CADET HY TRAN ONLY
TRANSMISSION FLUID CAPACITY — 13 PINTS

FUEL FILTER

FUEL FILTER MUST BE CLEANED AFTER EVERY 100 HRS. OF OPERATION. REFER TO ENGINE MANUAL FOR CLEANING PROCEDURE.

WARNING!
DO NOT USE ETHER OR ANY OTHER STARTING FLUIDS TO HELP START ENGINE

ATTENTION!
ENGINE WARM UP AT IDLE SPEED FOR APPROXIMATELY 5 MINUTES IS RECOMMENDED BEFORE OPERATING UNIT.

GENERAL INFORMATION LABEL

TO THE OWNER

Assembled in this manual are operation, lubrication, and maintenance instructions for the *Cub Cadet* 1772 tractor. The material has been prepared in detail to help you better understand the correct care and efficient operation of your tractor. Before you operate the tractor, study this manual carefully. Additional copies may be ordered from your dealer at a nominal price.

Your local authorized dealer is interested in the performance you receive from your tractor. He has factory-trained servicemen, informed in the latest method of servicing tractors, modern tools, and original-equipment service parts which assure proper fit and good performance.

CAUTION

DO NOT tow your tractor. Towing or pushing the tractor for more than a few feet may damage the hydrostatic drive unit.

The *Cub Cadet* 1772 tractor has a hydrostatic drive unit available and will require minimum service if recommended operation and maintenance procedures are followed.

To obtain top performance and assure economical operation the tractor should be inspected, depending on its use, periodically, or at least once a year, by your authorized dealer.

When in need of parts, always specify the model, chassis, and engine serial numbers, including the prefix and suffix letters. Write these serial numbers in the space provided on this page.

Should you have difficulties with the unit, consult your authorized dealer. UNDER NO CIRCUMSTANCES SHOULD YOU ATTEMPT TO SERVICE THESE UNITS YOURSELF. Only your dealer is authorized to repair or replace units on this drive under the terms of the warranty. Should you desire additional information not found in this manual, contact your authorized *Cub Cadet* dealer.

SERIAL NUMBER LOCATION

NOTE

LEFT and RIGHT indicate the left and right sides of the tractor when facing forward in the driver's seat. Reference to FRONT indicates grille end of the tractor; to REAR the drawbar end.

Chassis serial number plate is located near left rear fender. (See Figure 1.)

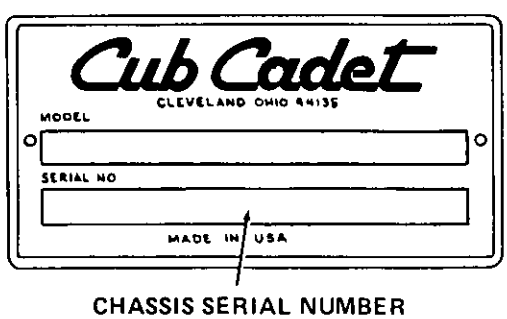


Figure 1

Engine serial number is located on the left hand, forward part of engine at engine mounting plate. (See Figure 2.)

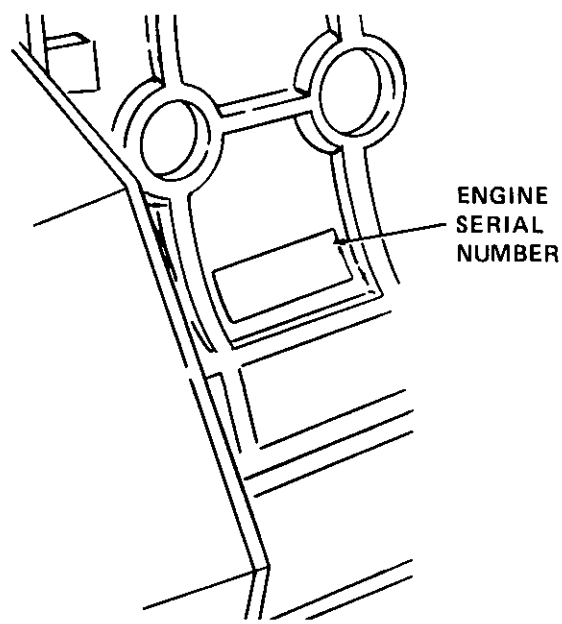


Figure 2

MODEL _____

DELIVERY DATE _____

CONTROLS

Your *Cub Cadet* Tractor has been safety engineered. Thoroughly acquaint yourself with all the instruments and controls before attempting to start or operate the tractor.

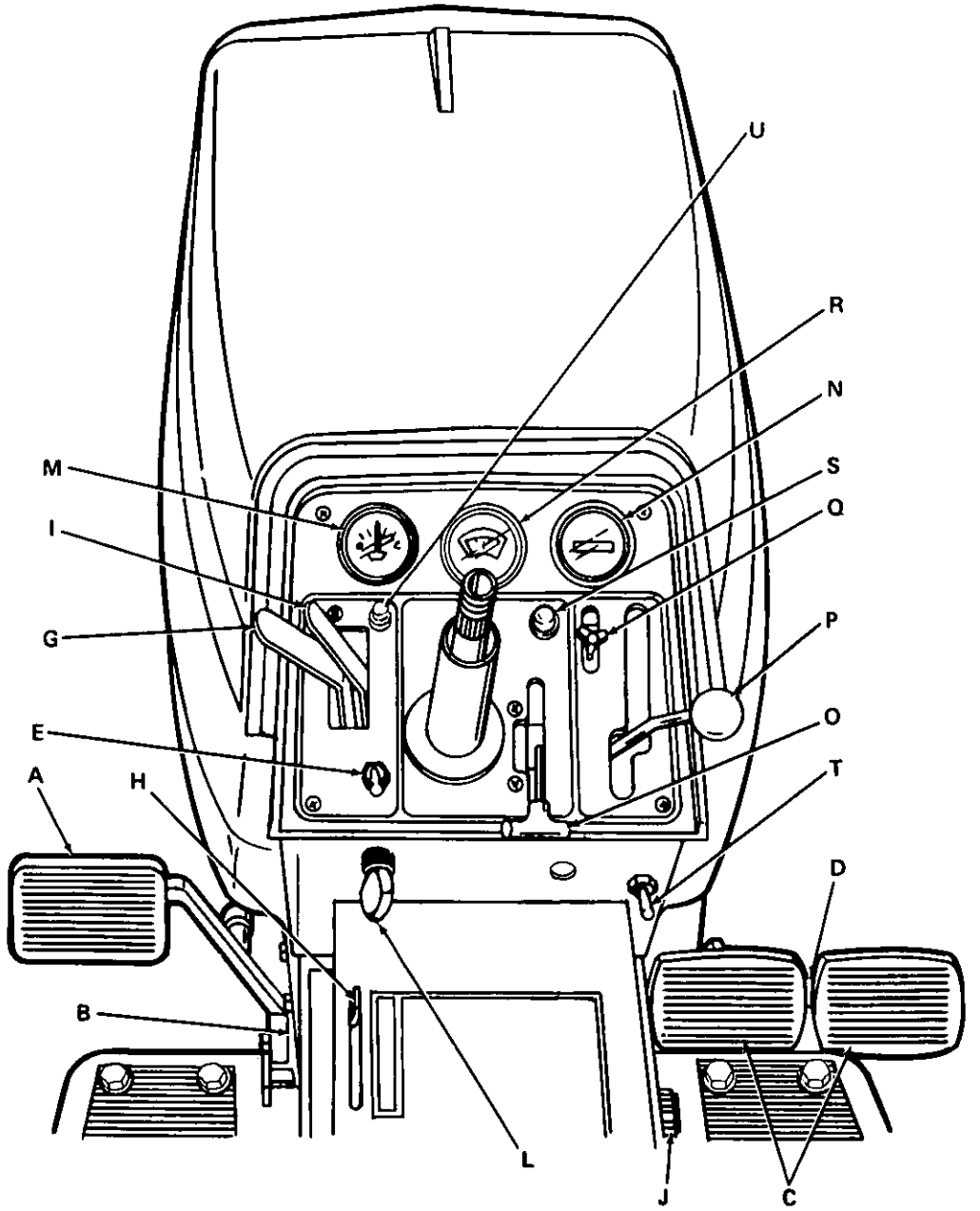


Figure 3

A. Single Brake Pedal
B. Single Brake Pedal Lock
C. Turning Brake Pedals
D. Turning Brake Pedal Lock
E. Power Take-Off Control Switch
F. Interlock Safety Switches (Not Shown)
G. Hydraulic Lift Control Lever
H. Lift Height Indicator
I. Hydraulic Front Power Outlet Control Lever
J. Cam Lock Knob
K. Steering Wheel (Removed for Clarity)
L. Ignition Switch
M. Charge Indicator
N. Hour Meter
O. Throttle Control Lever and Fuel Shut-Off
P. Speed Control Lever
Q. Speed Control Stop
R. Water Temperature Gauge
S. Glo-Plug Indicator Lamp
T. Light Switch
U. Oil Indicator Light

A. SINGLE BRAKE PEDAL

NOTE

Do not rest your foot on the single brake pedal while driving the tractor as this would cause the speed control lever to return to the "N" position.

Brake pedal must be pressed all the way down to activate the safety starting switch. When brake pedal is in the depressed position it automatically moves the speed control lever to the "N" position. (See Figure 4.)

The tractor can be stopped either by pressing the pedal all the way down, or placing the speed control lever in the "N" position.

B. SINGLE BRAKE PEDAL LOCK

WARNING

The hydrostatic transmission will not hold the tractor on a hill. In a short period of time (depending on the steepness of the hill) the oil will drain from the transmission and allow the tractor to roll downhill. To avoid an accident and/or possible injury, lock the brake.

Always lock the brake when tractor is parked on a grade. To lock the brake, the turning brake pedals must be locked together to provide braking to both rear wheels. Refer to "TURNING BRAKE PEDAL LOCK." Depress single brake pedal and place the single brake pedal lock in the engaged position. (See figure 4.) To disengage the lock, press down on the pedal, lift the lock up and place it in the disengaged position.

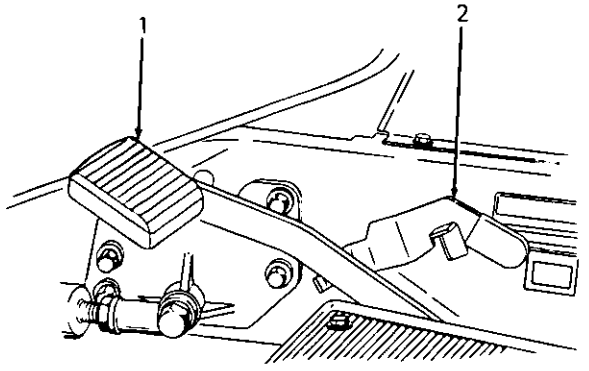


Figure 4

1. Single Brake Pedal
2. Single Brake Pedal Lock

C. TURNING BRAKE PEDALS

CAUTION

Use the two pedal brakes as turning brakes only at low speeds to maintain control of the tractor when using rear mounted equipment.

Two brake pedals are used for individual braking of the rear wheels to aid in turning the tractor in soft soil conditions. (See figure 5.) Depress the right brake pedal to slow or stop the right rear tractor wheel; depress the left brake pedal to slow or stop the left rear tractor wheel. The tractor will turn in the direction of the wheel that is slowed or stopped.

D. TURNING BRAKE PEDAL LOCK

CAUTION

Turning pedal brakes should not be used when mowing lawns. The wheel being braked may skid and cause lawn damage. Turning pedals should be locked together.

NOTE

Pedals must be latched together when operating the tractor in transport speeds.

The brake pedal lock is located in the top edge of the right brake pedal (See figure 5.) and is used to lock

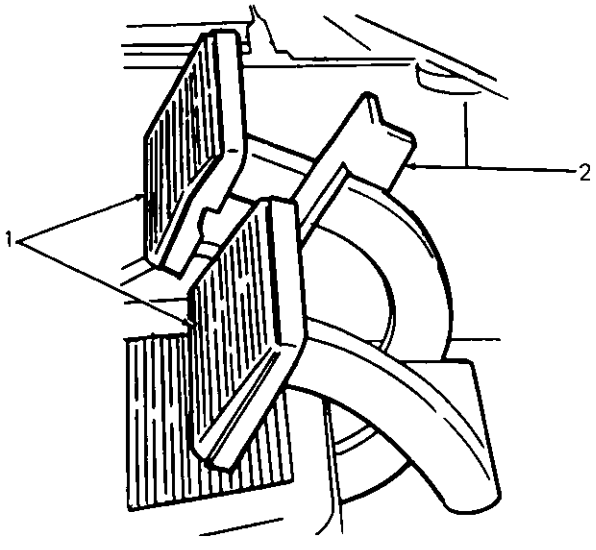


Figure 5

1. Turning Brake Pedals
2. Turning Brake Pedal Lock

the two pedals together to provide simultaneous braking to both rear wheels when the brake pedals are depressed. To lock the pedals together, pivot the lock and engage it in the slot in the left pedal. For individual brake action, pivot the lock into the storage slot in the right brake pedal.

If the brake pedals are not locked together and the single brake pedal is used, only the left rear tractor wheel is slowed or stopped.

E. FRONT POWER TAKE-OFF CONTROL SWITCH

The power take-off (PTO) control switch, which is located on the left side of the instrument panel (see Figure 3), operates an electric clutch. This electric clutch controls the engagement ("RUN") or disengagement ("OFF") of the front PTO.

F. INTERLOCK SAFETY SWITCHES

CAUTION

The engine will not start unless:

1. The single brake pedal is depressed.
2. The PTO switch is in the "OFF" position.
3. The operator is seated.

When using PTO operated equipment, the operator must remain in tractor seat at all times. If operator should leave tractor seat without turning off the PTO switch, the PTO will automatically disengage.

Interlock safety switches are activated by the single brake pedal, the PTO switch located on the control panel, and a switch located underneath the operator's seat.

The interlock safety switches, activated by the brake pedal, PTO switch and seat switch, serve to prevent starting the engine accidentally. The engine will not start unless: 1. the single brake pedal is depressed, 2. the PTO is in the "OFF" position, 3. the operator is seated.

The reverse switch is located on the underside of the pedestal. It is activated by the speed control lever. The reverse switch will disengage the PTO switch if the speed control lever is placed in reverse when the PTO switch is in the "RUN" position.

G. HYDRAULIC LIFT CONTROL LEVER

NOTE

The engine must be running in order to operate the hydraulic lift.

The hydraulic lift control lever controls the raising and lowering of a mowing deck, if installed. (See Figure 6.) The control lever is spring loaded. To raise the equipment, move the lever back toward the tractor seat. To lower the equipment, move the lever forward.

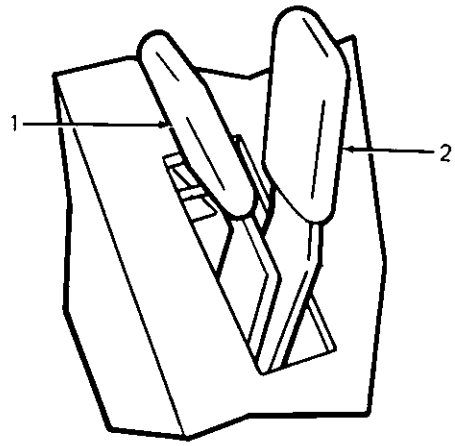


Figure 6

1. **Hydraulic Lift Control Lever**
2. **Hydraulic Front Power Outlet Control Lever**

H. LIFT HEIGHT INDICATOR

The lift height indicator will indicate the height of deck attachment when installed. (See Figure 7.)

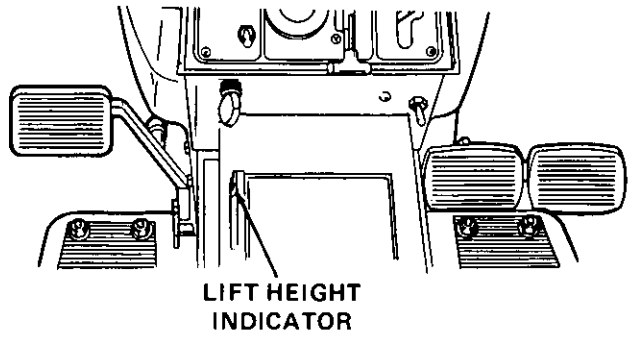


Figure 7

I. HYDRAULIC FRONT POWER OUTLET CONTROL LEVER

The front hydraulic outlet control lever (see Figure 6) controls angling of a front-mounted blade, if installed, through hydraulic outlets located on the front of the tractor. (See Figure 8.)

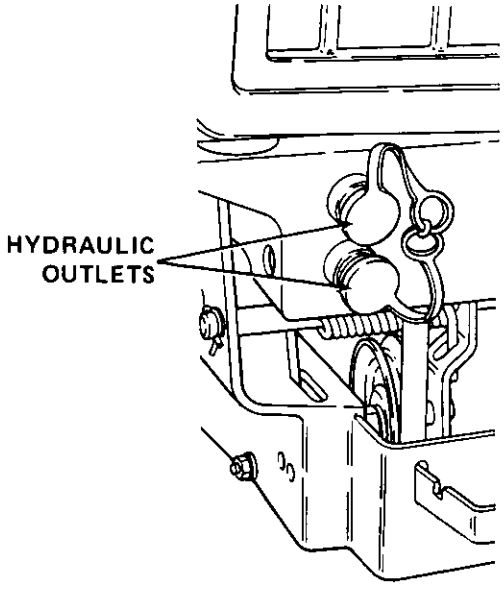


Figure 8

J. CAM LOCK KNOB

The cam lock knob is used to adjust the cam stop, which will allow an attached implement to return to a single preset height. (See Figure 9.)

With the implement at a desired height, release cam stop by turning locking knob counterclockwise. Turn cam stop until it contacts tang. Lock cam stop into this position by turning cam knob clockwise.

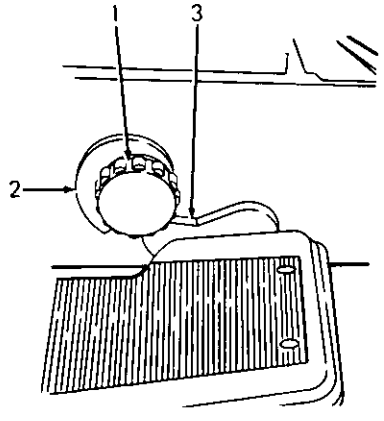


Figure 9

1. Locking Knob 2. Cam Stop 3. Tang

Equipment is normally operated in a "Float" position (implement free to move upward).

To operate equipment in a fixed "Locked" position, where down pressure of the implement is required (blade work), remove frame cover and install bolt, 1/2 x 1-1/8 inch (not furnished with tractor), between the lift arm and lift bracket. (See Figure 10.)

K. STEERING WHEEL

The steering wheel is used to control the direction the tractor is heading when moving.

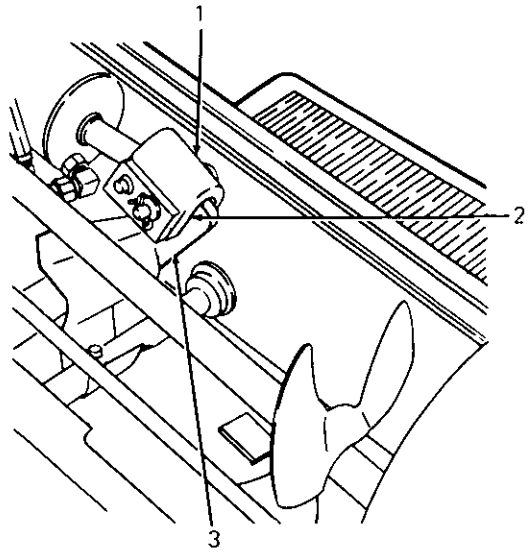


Figure 10

1. **Lift Bracket**
2. **Hole (Not Seen) for Bolt Lift Arm**
3. **Lift Arm**

L. IGNITION SWITCH

The ignition switch is a four-position switch. The ignition key is turned to "GLO-PLUG" position before it is turned to "START." Refer to "GLO-PLUG INSTRUCTIONS" on page 14 for explanation of this feature. Turn key to start position. When engine starts, release key. Key will retract to "ON" position. (See Figure 11.)

WARNING

Remove the key from the tractor when the tractor is not in use to prevent accidental starting and battery discharge.

NOTE

Under certain conditions it is possible for a Diesel Engine to start and run in a reverse condition.

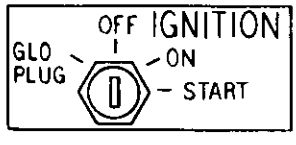


Figure 11

REVERSED ENGINE REVOLUTION AND REMEDIES

Reversed engine revolution must be stopped immediately since engine oil circulation is cut quickly, leading to serious engine trouble.

How to tell when the engine starts running backwards:

1. Lubricating oil pressure drops sharply. Oil pressure warning light will light, and remain on.
2. Since the intake and exhaust sides are reversed, the sound of the engine changes, and exhaust gas will come out of the air cleaner.
3. A louder knocking sound will be heard when the engine starts running backward.

REMEDIES

1. Immediately set the engine throttle to "OFF" position to stop the engine.
2. After stopping the engine, check the air cleaner, intake rubber tube and other parts and replace parts as needed.

M. CHARGE INDICATOR

This instrument indicates whether the alternator is charging or the battery is discharging. If it shows discharge continuously, investigate the cause to avoid completely discharging the battery and possible damage to the charging circuit. (See Figure 3.)

N. HOUR METER

The hour meter is located on the instrument panel. (See Figures 3 and 12.) It indicates the actual hours of engine operation, enabling the operator to determine, without guesswork, when lubrication, change of oil or periodic inspections are necessary. It also provides a means of computing cost of specific jobs. The hour meter operates whenever the engine is running or the ignition key is in the "ON" position.

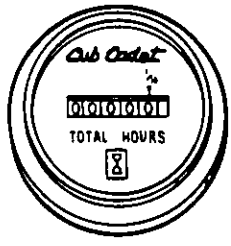


Figure 12

O. THROTTLE CONTROL AND FUEL SHUT-OFF LEVER

This lever controls the speed of the engine and fuel turn-on/shut off. When set in a given position, it will maintain a uniform engine speed. (See figure 3.)

When using power take-off operated equipment, best performance is achieved with the throttle lever in the "FAST" position.

This symbol shows slow position.

This symbol shows fast position.

P. SPEED CONTROL LEVER

NOTE

Do not rest your foot on the single brake pedal while driving the tractor as this would cause the speed control lever to return to the "N" position.

The lever is used to select any speed from a standstill "N" position to eight miles per hour in the forward direction and four miles per hour in the reverse direction.

Moving the speed control lever forward provides increased forward speed, and moving the lever rearward provides the reverse speeds. (See Figure 3.)

Q. SPEED CONTROL STOP

An adjustable speed control stop is provided to allow the operator to return to a predetermined speed. (See Figure 3.)

R. WATER TEMPERATURE GAUGE

This gauge is used to indicate engine coolant temperature and possible overheating of engine. (See Figure 3.)

S. GLO-PLUG INDICATOR LAMP

The glo-plug is used to assist cold starting. (See Figure 3.)

T. LIGHT SWITCH

The lights are turned on and off by a toggle switch on the lower right hand side of the instrument panel. (See Figure 3.) Flip switch up for "ON", down for "OFF".

U. OIL INDICATOR LIGHT

Indicates oil pressure of engine.

NOTE

Oil indicator light will be on when engine is started. (See figure 3.)

FUEL TANK

The fuel tank is located under the seat. (See Figure 13.)

FUEL TANK FILLER CAP GAUGE

The fuel tank filler cap gauge indicates how much fuel is present in the fuel tank. It also works as the fuel

tank cap. Remove the fuel tank filler cap gauge to fill the fuel tank. Reinstall filler cap after filling tank. (See Figure 13.)

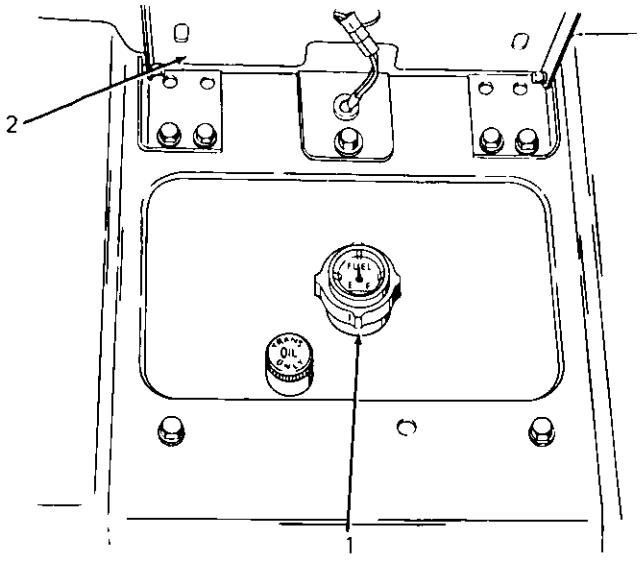


Figure 13

1. **Fuel Tank**
2. **Seat**

FUEL SHUT-OFF VALVE

The fuel shut-off valve, which is located below the fuel tank, is used as a main fuel shut-off to the engine. To turn the fuel on, turn the knob counter-clockwise to the stop. To turn the fuel off, turn the knob clockwise until it is tight.

CIRCUIT BREAKER

Located under hood inside of pedestal.

HOOD AND NOISE ISOLATION PANELS

The tractor hood is arranged to swing up and forward for easy access to the engine compartment. Whenever engine maintenance is required, the noise isolation panels can be readily removed by removing the two wing nuts and two washers, one on each side, and disconnecting the panel spring. (See Figure 14.)

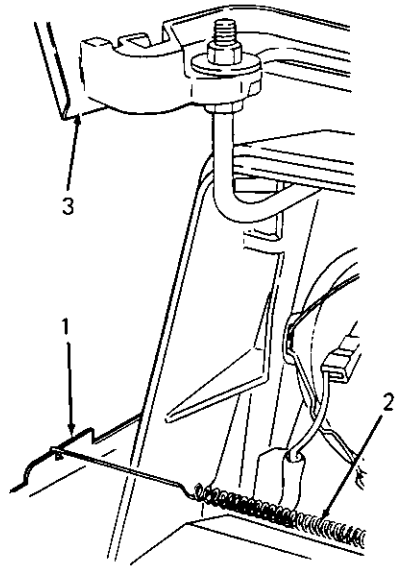


Figure 14

1. **Noise Isolation Panel (One On Each Side)**
2. **Panel Spring**
3. **Hood**

OPERATION

PRE-OPERATION CHECKLIST

1. Check oil level.
2. Check radiator coolant level.
3. Check air cleaner dust cup.
4. Clean radiator screen.
5. Fill fuel tank with diesel fuel.
6. Check transmission fluid level.

ENGINE OIL REQUIREMENTS

RECOMMENDED OIL
***Cub Cadet* Diesel Engine Oil**

Ambient Temperature	Viscosity (Grade CD)
Above 77°F	SAE 30
32°F to 77°F	SAE 20 or 15W-40
Below 32°F	SAE 10 or 10W-40

DO NOT USE: Synthetic oil, non-detergent oil or other non-recommended oils.

DO NOT MIX different brands of oil.

ENGINE OIL CAPACITY 98.4 oz. (6.2 pints) including oil in oil filter.

OIL CHANGE INTERVALS

	OIL	OIL FILTER
Initial Change	35 hours	35 hours
Normal Change	100 hours	200 hours

OIL DIPSTICK CHECKS

Dipstick should be checked before starting the unit EVERY TIME.

Dipstick markings indicate upper and lower limits at a cold oil condition.

Never overfill engine oil.

RADIATOR COOLANT MIXTURE

WARNING

Turn the radiator cap slowly counterclockwise to the pressure release point to allow the pressure or any steam to escape; then press down on the cap and continue to turn until the cap is free to be removed.

CAUTION

Readings above 230°F can indicate possible overheating of engine. If overheating occurs, vapor can be seen coming from the radiator over flow tube.

Check the following:

1. Radiator Screen
2. Coolant Level

Check radiator coolant level before starting engine when the engine is still cold. Add coolant as required.

Total coolant - 1 gallon

Coolant consists of 50-50 mixture - 2 quarts water, 2 quarts anti-freeze (ethylene glycol)

NOTE

Water and anti-freeze must be mixed prior to filling radiator.

RADIATOR SCREEN

CAUTION

Radiator screen must be cleaned before each use and kept free of debris.

NOTE

Radiator screen must be cleaned more frequently in dusty and high grass cutting conditions. This is to prevent overheating of the engine.

Check radiator screen for dirt and debris before each use.

GLO-PLUG INSTRUCTIONS

Ambient Temperature	Instructions
35°F and higher	Turn ignition switch key to "GLO-PLUG" until glo-plug indicator light is lit.
34°F and below	Turn ignition switch key to "GLO-PLUG" until glo-plug indicator light is lit. Return ignition switch key to "OFF," and repeat procedure once again.

AIR CLEANER MAINTENANCE

Clean air cleaner element - every 100 hours.

Change air cleaner element - every 400 hours or once a year (for element cleaning and replacement information see maintenance section).

Air cleaner dust cup - remove cover and clean dust cup before every use.

NOTE

In dusty conditions clean element and cup more frequently.

DIESEL FUEL REQUIREMENTS

CAUTION

Never run engine out of fuel. Doing so will require fuel system bleeding. (See maintenance section.)

Use the following diesel fuel grades:

Temperature	Type
+10°F and Above	#2-D
Below +10°F	#1-D

Grade 2-D diesel fuel conforming to ASTM D-975 specification must be used for proper operation of these tractors. Grade 1-D diesel fuel may be used at temperatures below +10°F (–12.2°C) or for operations entailing considerable idling. Use only winter grade fuel for ease of starting. Winter grade diesel fuel must have a cloud point of at least 10°F (6°C) below the lowest anticipated temperature to avoid plugging of the fuel circulation system, especially the fuel filters.

NOTE

Type #1-D and #2-D diesel fuels must have a cetane rating of 45 or higher.

Fuel tank capacity - approximately 4 gallons.

FUEL FILTER

Fuel filter must be cleaned after every 100 hours of operation. Refer to maintenance section for cleaning procedure.

ENGINE COOLANT HEATER (Optional)

WARNING

Connecting heater to power source before it is immersed in coolant may result in EXPLOSION and INJURY. Always be sure that the element is immersed in coolant before connecting to power source.

At temperatures below freezing, it may be necessary to use an engine coolant heater as a starting aid.

An engine heater is available to warm the engine coolant as a starting aid during cold weather. It is located on the left side of the engine and requires a 3-wire extension cord and a 120-volt AC grounded outlet for safe operation.

After engine starts, be sure to disconnect extension cord before moving tractor.

BEFORE OPERATING YOUR TRACTOR

WARNING

Explosion hazard. Do not use starting aids such as fuel or ether in the air intake.

CAUTION

Engine warm-up at idle speed for approximately 5 minutes is recommended before operating unit.

1. Before you operate the tractor, study this manual carefully. It has been prepared to help you operate and maintain your tractor with utmost efficiency.
2. Familiarize yourself with the operation of all the instruments and controls.
3. Fill the fuel tank with clean, fresh, diesel fuel. (See Figure 15.) Tank is located under the seat.
4. Check the tire inflation pressures.
5. Adjust the seat for operator's maximum comfort, visibility, and complete control of the tractor.
6. Make certain that the grille is clean and unobstructed. Pull forward on top edge to expose rear side of grille. Remove by hand any accumulated grass and debris.
7. Refer to various sections of the operator's manual for additional information.

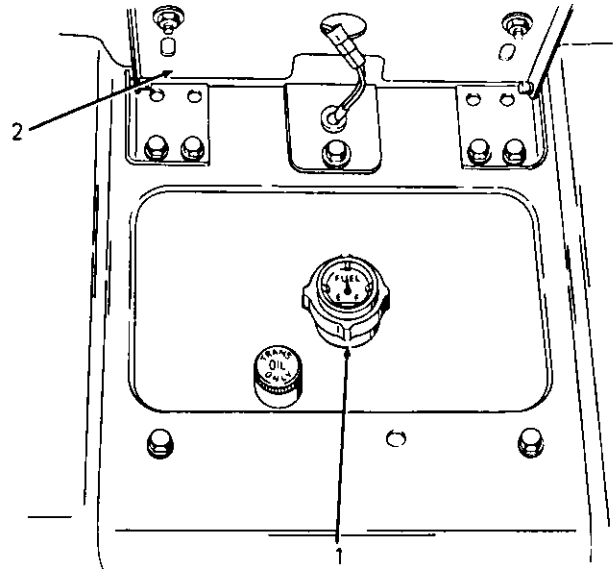


Figure 15

1. **Fuel Tank**
2. **Seat**

STARTING THE ENGINE

WARNING

Do not operate the tractor if the interlock system is malfunctioning, because it is a safety device, designed for your protection.

NOTE

This unit is equipped with a safety interlock system for your protection. The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the brake pedal is depressed and the PTO switch is in the "OFF" position. In addition, the PTO lever must be in the "OFF" position when the unit is put into reverse or the PTO will shut off. Operator must remain in the seat when the PTO is on or the PTO will shut off.

NOTE

This tractor is equipped with a disconnect clutch which is mounted on the engine to transmission drive shaft. The purpose of the disconnect clutch is to allow the engine to start before the transmission is engaged. This will greatly reduce the load on the engine when it is started, thus making it easier to start. (See Figure 16.)

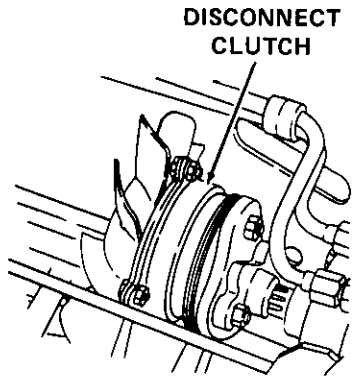


Figure 16

TO START

1. Before starting engine run through pre-operation checklist (located inside hood). Be familiar with controls. Be in operator's position with transmission speed control in neutral ("N"), PTO switch "OFF," and brake depressed.
2. Move throttle control forward to "START" position (never start engine at full throttle).
3. Turn ignition switch key to "GLO-PLUG" per "GLO-PLUG INSTRUCTIONS" on page 14. NOTE: If engine is warm, step 3 may be bypassed. (See Figure 17.)
4. Turn key to "START" position. When engine starts, release key. Key will retract to "ON" position.
5. Throttle should remain in "START" position (idle) for approximately 5 minutes or longer for proper engine warm up.

TO SHUT OFF

1. Return transmission speed control lever to neutral, depress brake. Return PTO to "OFF" position.
2. Move throttle to "START" position (idle) for approximately 1 minute.
3. Move throttle to "OFF" position.

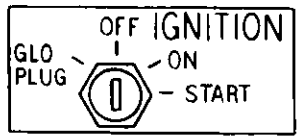


Figure 17

4. Turn key to "OFF" position and remove. NOTE: Key will not turn off engine.

DRIVING THE TRACTOR

WARNING

When the engine is off, the tractor will become very difficult to steer. This is because the engine must be on for the power steering to operate. Do not turn off engine until tractor comes to a complete stop, or damage to equipment or injury to persons might occur.

CAUTION

Avoid sudden starts, excessive speed, and sudden stops. Keep tractor in gear when going down hills.

CAUTION

Do not leave the seat of the tractor without depressing the single brake pedal and setting the brake lock. If leaving the tractor unattended, also turn the ignition key to the "OFF" position and remove the key.

NOTE

Hydraulic power for the power steering will take priority over installed hydraulically driven accessories.

NOTE

When using power take-off operated equipment, best performance is achieved with the throttle lever in the "FAST" position.

Unless turning brake pedals are needed for control in turning the tractor, they should be locked together at all times to provide simultaneous braking to both rear wheels.

1. Depress the single brake pedal, release the brake lock, and let the pedal up. Move the throttle lever to the position where the engine operates best for the load to be handled.
2. Start the tractor in motion by moving the speed control lever slowly forward or rearward to desired speed.

DRIVING ON SLOPES

(Refer to "SLOPE GAUGE" on page 39 in order to help determine slopes where you may not operate safely.)

WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury.

WARNING

Operate RIDING mowers up and down slopes, never across slopes.

CAUTION

Always drive up or down the face of a slope. Do not drive so that the tractor may tip over sideways.

Before operating the tractor on any slope, walk the slope to look for possible hazards such as rocks, mounds, ruts, stumps or other surface irregularities which could cause an upset.

Back the tractor with implement up the steepest portion of each slope you intend to work. If the tractor cannot negotiate the slope in reverse, the slope is too steep to be worked.

Avoid turns when driving on a slope. If a turn must be made, turn down the slope. Turning up a slope greatly increases the chance of a roll over.

Avoid stopping when driving up a slope. If it is necessary to stop while driving up a slope, start up smoothly and carefully to reduce the possibility of flipping the tractor over backward.

STOPPING THE TRACTOR

CAUTION

Always engage single brake pedal lock, lower equipment and shut off engine before dismounting. Never try to start engine from ground.

Move the speed control lever to the "N" position or use the single brake pedal. Before dismounting always lock the brake pedal and turn the ignition "OFF". Also disengage the PTO switch.

The turning brake pedals must be latched together to provide braking to both rear wheels. Latch turning brake pedals together before locking single brake pedal.

DRAWBAR

Drawbar equipment must be hitched to the tractor only at the hitch hole in the drawbar.

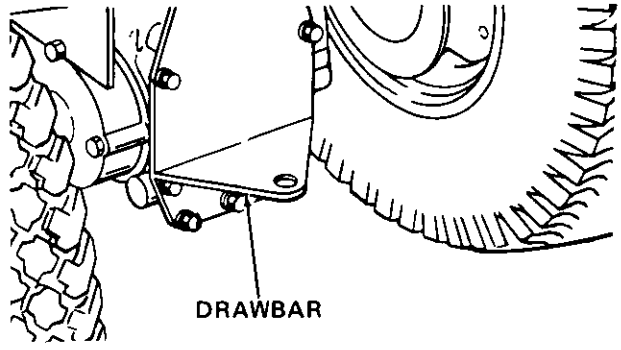


Figure 18

OPERATING THE FRONT POWER TAKE-OFF CLUTCH (PTO)

NOTE

Be certain to follow break-in instructions listed.

1. Move the throttle lever back to the medium or "SLOW" position.
2. Flip the toggle switch to the "RUN" (C) position.
3. Advance throttle to operating speed (full speed).
4. The operator must remain in tractor seat at all times. If operator should leave tractor seat

without turning off the power take-off switch, the PTO will automatically disengage.

5. PTO switch must be in the "OFF" (A) position when shifting the tractor into reverse, or the PTO will shut off automatically. To re-engage the PTO, shift unit into neutral. Move PTO switch to "OFF" (A) position. Then pull knob out and lift up to start (B) position and release.

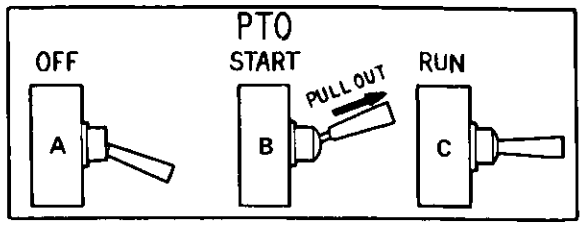


Figure 19

FRONT PTO CLUTCH BREAK-IN PROCEDURE

To break in the components and increase the life of the clutch assembly, proceed as follows.

1. Attach mowing deck, snow thrower, etc. to the tractor.
2. Adjust the belt tension as recommended in attachment owner's manual.
3. Engage and disengage the PTO ten to fifteen times without any load (not cutting grass, not blowing snow, etc.).

ADJUSTMENTS

ADJUSTING THE SEAT

Before starting the tractor, adjust the seat to the most comfortable driving position. Tilt the seat forward over the steering wheel, loosen the four cap screws in the seat support, and slide the seat assembly forward or rearward to the position which is most comfortable for the operator. (See Figure 20.)

Retighten the cap screws after the seat is adjusted.

ADJUSTING THE POWER TAKE-OFF CLUTCH

WARNING

To avoid possible injury, always disengage all clutches, move speed control into neutral, depress the brake, set the brake pedal lock and turn the ignition "OFF" before working on the machine.

The clutch is factory-adjusted and should not require further adjustment under normal operating conditions. However, if the clutch fails to operate properly, check as follows:

Check circuit breaker inside pedestal. Using a feeler gauge, check the air gap. (See Figure 21.) Insert feeler gauge into one of three access slots located around the outside of the brake plate. The air gap should be .017 inches. Adjust the self-locking nuts to obtain the proper clearance. Repeat the operation in all three access slots.

NOTE

If brake plate drags on clutch at .017 inches air gap, increase air gap to .020 inches.

If the above procedure does not work, see your authorized dealer.

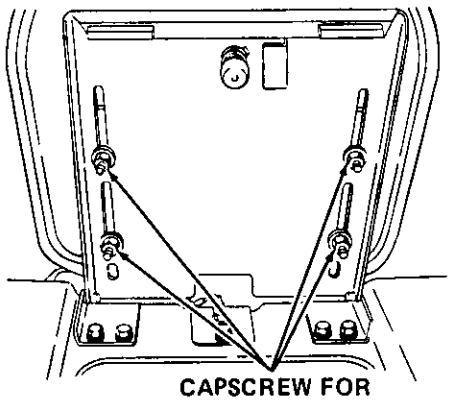


Figure 20

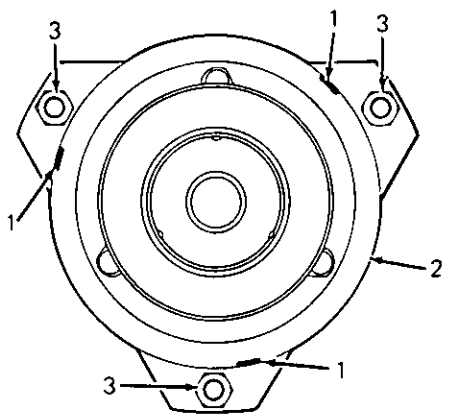


Figure 21

1. **Access Slots**
2. **Brake Plate**
3. **Self-Locking Nuts**

BRAKE ADJUSTMENT

During normal operation on this machine, the brakes are subject to wear and will require periodic examination and adjustment.

Brake adjustment check:

1. To check brake adjustment, place a 1 inch thick wood block between the single brake pedal and the brake pedal lock (see Figure 22.)

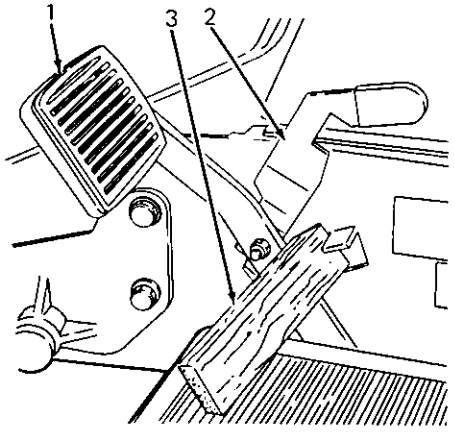


Figure 22

1. **Single Brake Pedal**
2. **Brake Pedal Lock**
3. **1 Inch Thick Wood Block**

2. With the 1 inch thick wood block installed, the brake disc pads should be applying a light amount of friction against the brake disc rotor. If they are not, the brakes need adjustment (see Figure 22.)

Brake adjustment (See Figure 23.)

1. Latch turning brake pedals together.
2. Place a 1 inch thick wood block between the single brake pedal and the brake pedal lock (see Figure 22).
3. Remove cotter pins and washers from rear end of both brake rods and loosen jam nuts from clevises.
4. Block the front wheels and raise the rear wheels.
5. Adjust each brake rod in turn by:
   A. To tighten the brakes, shorten the length of the brake rod by turning it into the clevis.
   B. To loosen the brakes, make the brake rod longer by turning it away from the clevis.
6. Adjust the brake rods until the disc pads apply a light amount of friction against the rotor.
7. Reinstall cotter pins, washers, and tighten jam nuts.

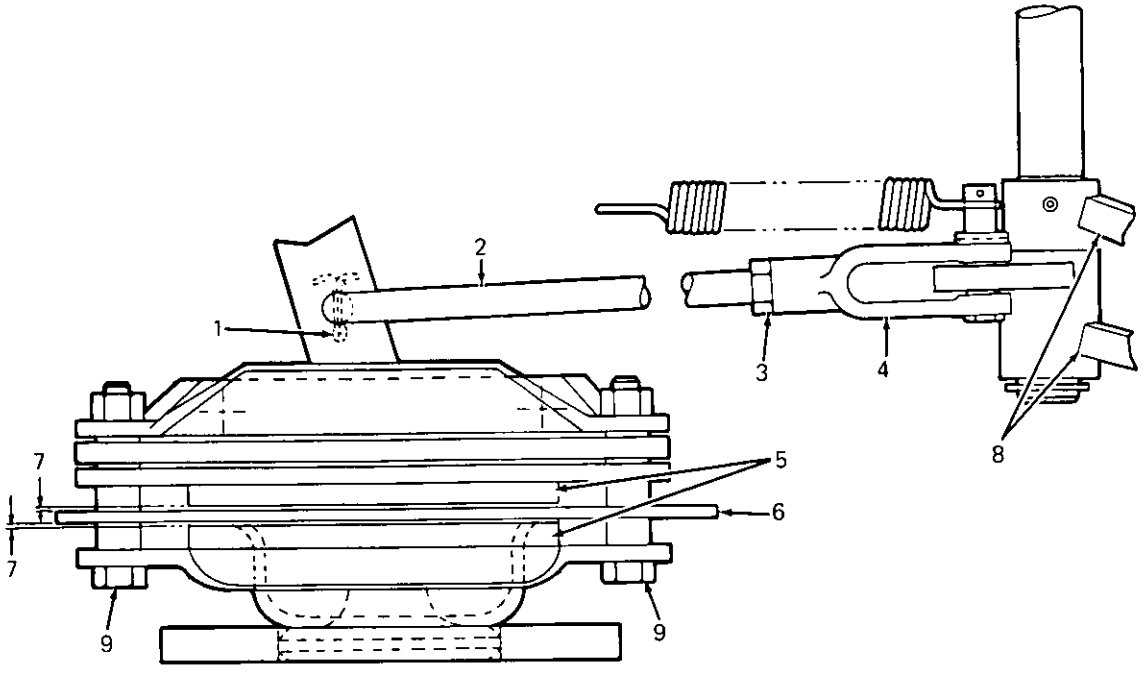


Figure 23. Right Side Shown

1. **Cotter Pin and Washer (Both Sides)**
2. **Brake Rod (Both Sides)**
3. **Jam Nut (Both Sides)**
4. **Clevis (Both Sides)**
5. **Disc Pads (Both Sides)**
6. **Rotor (Both Sides)**
7. **Clearance Between Disc Pads and Rotor (Both Sides)**
8. **Turning Brake Pedal Arms**
9. **Brake Assembly Mounting Bolts**

8. Recheck brake adjustment. If the adjustment is correct, remove wood block and lower tractor.
9. With the wood block removed, the brake disc pads must not rub against the brake rotor.

WHEEL ALIGNMENT

The front wheels should toe-in approximately 1/8 inch.

Measure the distances A and B on the front wheels. (See Figure 24.)

NOTE

Dimension B should be approximately 1/8 inch less than dimension A.

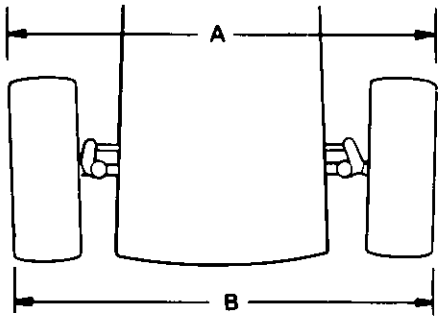


Figure 24

For adjustments of toe-in, see your authorized *Cub Cadet* dealer.

FRONT WHEEL ADJUSTMENTS

Check the front wheels to ensure that the turning radius of the unit is equal in both directions. Turn the wheels all the way to the left. Measure the angle of the wheel to the frame. Turn the wheel all the way to the right and repeat the measurement. The angles shall be equal.

NOTE

Power steering components are under hydraulic pressure, if not properly adjusted serious damage may occur to steering components.

For adjustments on front wheels, see your authorized *Cub Cadet* dealer.

PIVOT BAR ADJUSTMENT BOLTS

CAUTION

The tractor must be checked every 50 hours of tractor operation for play between the front axle and the pivot bar adjustment bolts. The adjustment bolt heads must fit against the front axle. If play is discovered, the pivot bar adjustment bolts must be adjusted or costly damage will occur to the tractor.

If play is discovered between the front axle and the pivot bar adjustment bolt heads, adjust both bolts as follows: (See Figure 25.)

1. Loosen jam nut 3 to 4 turns or as required.
2. Turn pivot bar adjustment bolt counterclockwise until it hits against the front axle.
3. Tighten jam nut.

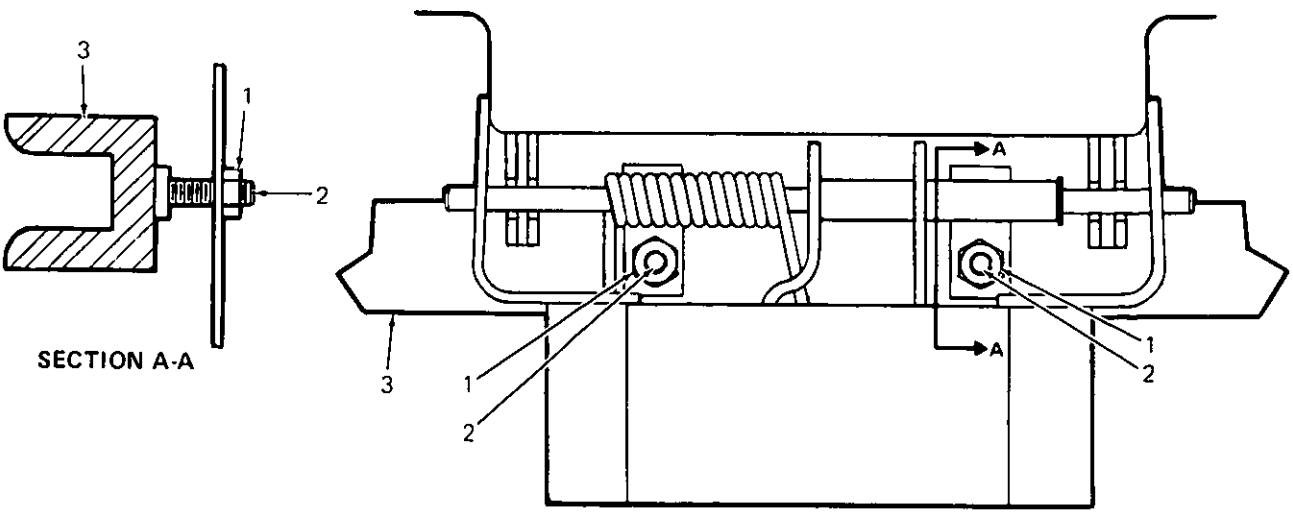


Figure 25

1. Jam Nut
2. Pivot Bar Adjustment Bolts
3. Front Axle

FAN AND GENERATOR BELT

Fan Belt Tension and Damage

An improperly adjusted fan belt can cause engine overheating. Push on the fan belt at the middle with a finger, and check that it deflects about 0.4 in. (10 mm) [at a load of 22.1 lb. (10 kg)]. Also check the belt for cracks or tears.

Tension Adjustment Generator Belt

(See Figure 26)

Loosen the two bolts holding the generator, and adjust until proper tension is obtained. Be sure to retighten the nuts and bolts after adjustment.

Tension Adjustment Fan Belt

(See Figure 26)

Loosen two hex bolts. Insert 3/8 inch drive ratchet wrench at top square hole. Apply pressure, and while applying pressure retighten two bolts.

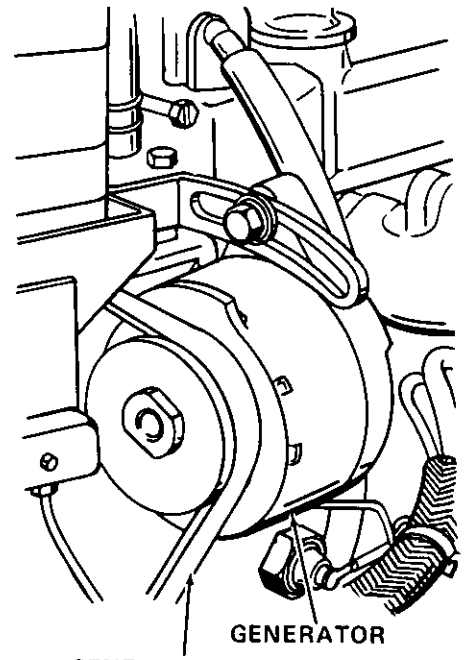


Figure 26

MAINTENANCE

FUEL

Fuel Level Check and Refueling

Always use light oil diesel fuel. You are required to use recommended diesel fuels only. Do not use alternative fuels, because their quality is unknown and their quality may be inferior. Do not use kerosene, which is very low in cetane rating, and could adversely affect the engine.

See page 14 on fuel required.

WARNING

1. Do not add fuel or alcohol to diesel fuel. This creates a vapor which is extremely explosive.
2. NEVER SMOKE while refueling. Shut off engine and electrical equipment.
3. Never remove the fuel tank cap or fill the fuel tank near an open flame. Do not smoke when working around inflammable fuel.

CAUTION

1. Be sure to use a strainer when filling the fuel tank. Dirt or sand in the fuel will cause fuel injection pump failure.
2. Be careful not to let the fuel tank become empty, or air can enter the fuel system, which will necessitate bleeding before engine will start.
3. Be careful not to spill fuel during refueling. If fuel should spill, wipe it off at once to reduce chance of a fire.

NOTE

Do not fill the tank to its full capacity. Space is required for vapor expansion in the event of a temperature change. A tank filled to capacity may overflow if exposed to a rise in temperature or direct sunlight.

Be sure that the filler cap is tightened securely before starting the engine.

Bleeding the Fuel System

Bleeding the fuel system is required:

1. After the fuel filter and lines have been detached and refitted.
2. After the fuel tank has become empty.
3. Before the tractor is to be used after long storage.

PROCEDURE

1. Fill the fuel tank. Open the fuel shut-off valve. (See Figures 27 and 28.)
2. Loosen air vent plugs of the fuel filter a few turns.
3. Turn ignition key switch to "ON" position to activate fuel pump.

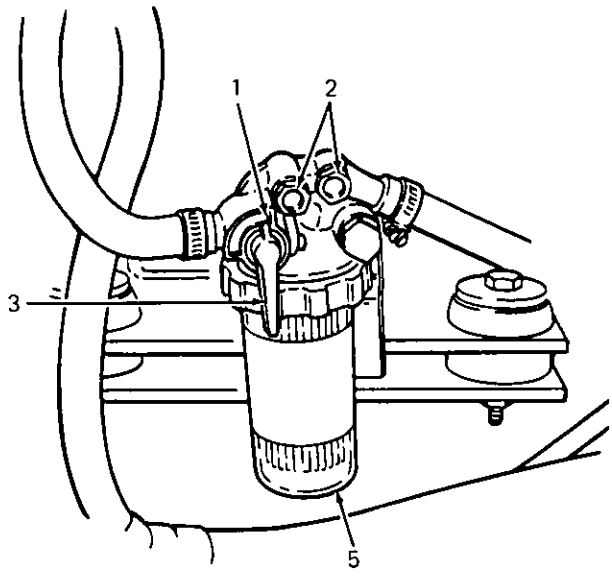


Figure 27

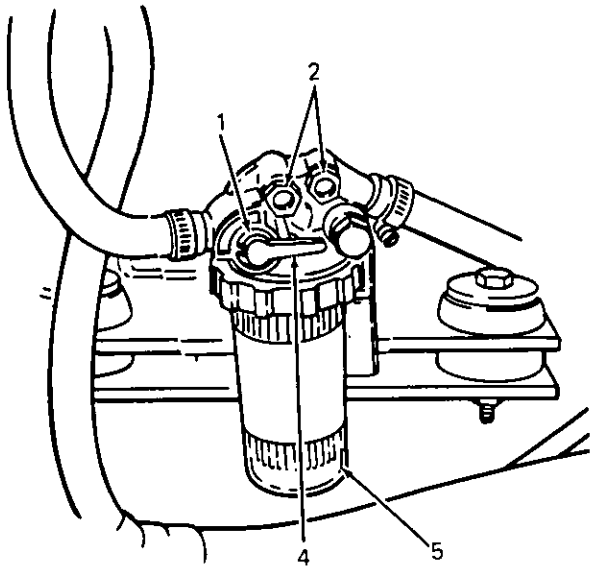


Figure 28

1. Fuel Shut-Off Valve
2. Air Vent Plugs
3. Fuel Shut-Off Valve "ON"
4. Fuel Shut-Off Valve "OFF"
5. Fuel Filter Bowl

4. Retighten air vent plugs when air bubbles do not appear anymore.
5. Turn ignition key to "OFF" position.

WARRANTY NOTICE

The warranty on these engines and/or power train components shall not apply to any failure that results from an unauthorized adjustment of the fuel injection system.

Any attempt to increase the engine horsepower by increasing engine r.p.m. above its rated maximum, or by other means, not only affects traveling speeds but affects the life of matching parts and voids the company responsibility as outlined in the warranty.

INJECTION PUMP (Air Bleeding)

CAUTION

Always keep the air vent plug on the fuel injection pump closed except when bleeding system, or it may cause the engine to stop.

If the engine will not start after bleeding the fuel pump, bleed the air further in the system, as follows. (See figure 29.)

1. Loosen the air vent plug.
2. Turn ignition key switch to "ON" position to activate fuel pump.
3. Tighten the air vent plug.

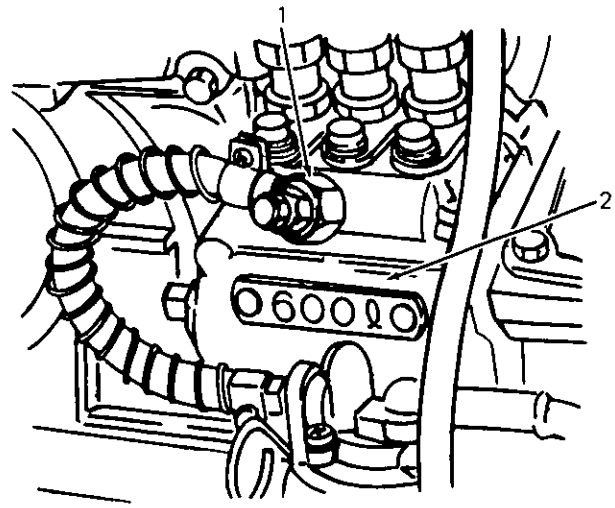


Figure 29

1. Air Vent Plug
2. Injection Pump

CHECKING THE FUEL LINES

WARNING

Check or replace the fuel lines only after stopping the engine. Broken fuel lines can cause fires.

CAUTION

When the fuel lines are disconnected, plug them at both ends with clean cloth or paper to prevent dirt from entering the lines. Dirt in the lines can cause fuel injection pump malfunction.

Check the fuel lines every 50 hours of operation.

1. The fuel lines deteriorate regardless of amount of use of tractor.
2. Replacement of fuel lines are recommended every 2 years. If the fuel lines and clamps are found worn or damaged before two years, replace or repair immediately.
3. After replacement of the lines and clamps, bleed the fuel system.

CLEANING THE FUEL FILTER BOWL

CAUTION

If dust and dirt enter the fuel, the fuel pump and injection nozzle are subject to quick wear. To prevent this, be sure to clean the fuel filter bowl periodically.

Clean the fuel filter every 100 hours.

This should not be done in the field, but in a clean place so as to prevent dust intrusion.

1. Close the fuel filter bowl shut-off valve. (See Figures 27 and 28.)
2. Unscrew and remove the filter bowl, and rinse with kerosene.
3. Take out the filter element and rinse in kerosene.
4. After cleaning, reassemble the fuel filter, keeping out dust and dirt.
5. Bleed the injection pump.

ENGINE OIL

Checking Oil Level and Adding Engine Oil

(See Figures 30 and 31.)

CAUTION

Do not operate the engine with the oil level nearing the lower mark because the oil may deteriorate quickly. Keeping the oil level near the upper mark is recommended (never overfill).

1. Check the engine oil level before starting the engine or after five minutes once it has been stopped.
2. Remove the dipstick, wipe clean, reinsert it, take it out again, and check the oil level. Oil level should be between the two marks at lower end of dipstick.
3. If the oil level is low, remove the oil port fill plug, and add new oil to the prescribed level.

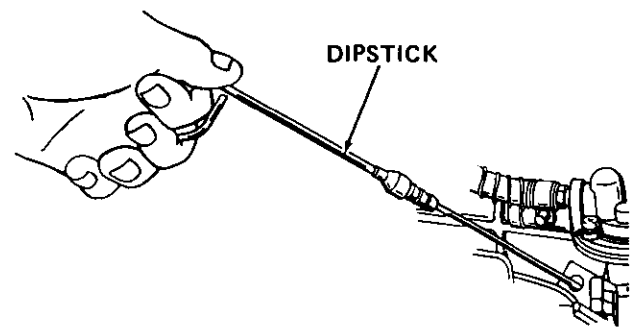


Figure 30

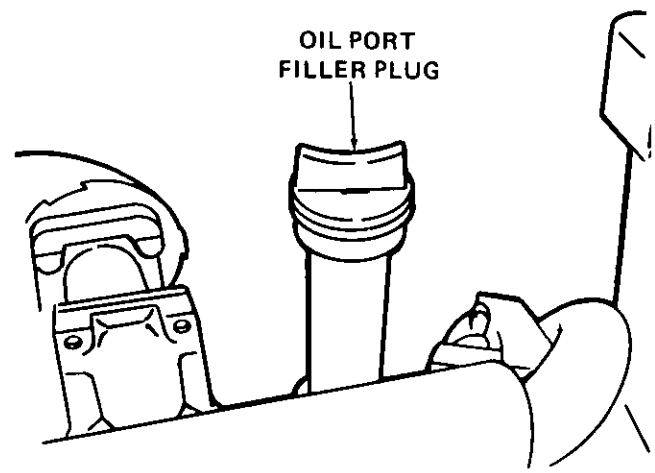


Figure 31

CHANGING ENGINE OIL

CAUTION

Stop the engine before changing oil.

1. Remove the drain plug at the bottom of the engine, and drain all the old oil. Draining oil will be easier and complete if done while the engine is still warm.
2. Replace drain plug and add new engine oil up to the upper mark of the dipstick.
3. Engine should be started, run briefly, stopped and oil level rechecked.

REPLACING THE OIL FILTER CARTRIDGE (See Figure 32)

CAUTION

Stop the engine before replacing the oil filter cartridge.

Wipe off any excess oil after installing filter.

1. Replace the oil filter cartridge after the first 35 hours. Thereafter, change the oil filter with every other engine oil change.
2. Remove the oil filter cartridge with a filter wrench.
3. Apply a film of oil to the gasket of the new cartridge.

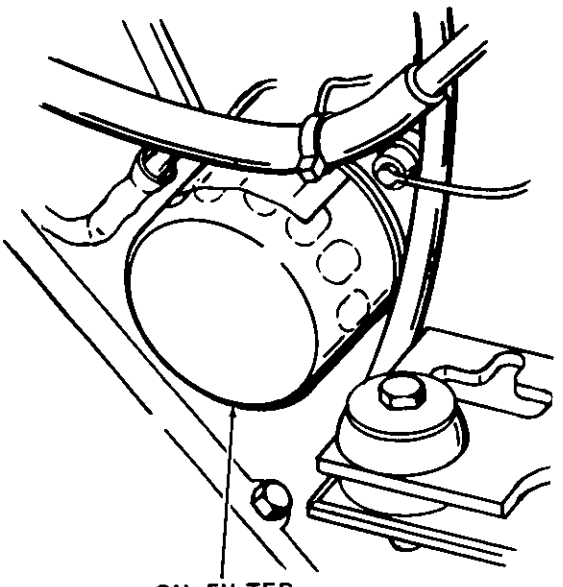


Figure 32

4. Screw in the cartridge by hand. When the gasket comes into contact with the seal surface, tighten the cartridge an additional 1/2 turn by hand.
5. After the cartridge has been replaced, the engine oil level drops. Thus, run the engine for a while and check for oil leaks around the seal. Recheck the engine oil level. Add oil if necessary.

RECOMMENDED OIL

Use *Cub Cadet* Diesel Engine Oil with viscosity grade according to the following ambient temperature ranges.

Ambient Temperature	Viscosity (Grade CD)
Above 77°F	SAE 30
32°F to 77°F	SAE 20 or 15W-40
Below 32°F	SAE 10 or 10W-40

DO NOT USE: Synthetic oil, non-detergent oil or other non-recommended oils.

DO NOT MIX different brands of oil.

ENGINE OIL CAPACITY—98.4 oz. (approximately 6.2 pints) including oil in oil filter.

OIL CHANGE INTERVALS

	OIL	OIL FILTER
Initial Change	35 hours	35 hours
Normal Change	100 hours	200 hours

ENGINE OIL LEVEL CHECKS

1. Engine oil level should be checked before starting the unit every time.
2. Dipstick markings indicate upper and lower limits at a cold oil condition.
3. Never overfill engine oil.

RADIATOR AND COOLANT

WARNING

It is dangerous to remove the radiator pressure cap when the system is hot. Allow the system to cool and remove the cap cautiously.

CAUTION

1. Make it a rule to check the coolant level before every operation.

2. Never use dirty or salt water as coolant.
3. Be sure to tighten the radiator pressure cap securely after checking coolant.
4. When coolant is added, coolant level may drop the first time the engine is started. After operating tractor briefly, allow system to cool and recheck coolant level.
5. To drain coolant, always open both coolant cocks located at the crankcase side and at the lower part of the radiator; simultaneously open the radiator cap as well. With the cap tightly closed, a complete drain of coolant is impossible.

Checking Level, Adding and Changing Coolant (See Figure 33)

1. Remove the radiator pressure cap, and check to see if water reaches the support port.
2. In the event of insufficient coolant, fill the radiator with proper coolant. In addition, check two drain cocks at the lower part of the radiator and the side of the crankcase to see if they are securely closed.

Tractors shipped in the United States and Canada have the cooling systems filled with antifreeze solution.

Hot Weather Operation

We recommend the use of water with the addition of cooling system conditioner. The boiling point of ethylene glycol solution is higher than that of water, but the ability to transfer heat is less. As a result, the engine will run cooler with conditioned water.

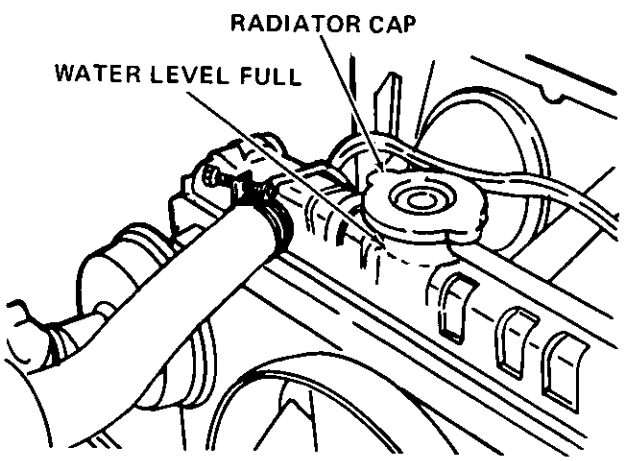


Figure 33

Other than Hot Weather Operation

We recommend the use of antifreeze with a mixture ratio to protect the coolant to the lowest anticipated temperature or a minimum of 33 percent antifreeze for rust and corrosion protection.

RADIATOR COOLANT MIXTURE

Total coolant - 1 U.S. gallon (6 pints).

Coolant consists of 50-50 mixture - 2 quarts water, 2 quarts antifreeze (ethylene glycol).

NOTE

Water and antifreeze must be mixed prior to filling radiator.

AIR CLEANER (See Figures 34, 35, 36 and 37)

1. The element of the air cleaner on this engine is dry type. Never apply oil to it.
2. Remove and clean out the dust cup every day if the work surroundings are dusty. Never allow dust cup to become half full with dust. (See Figure 36.)
3. Avoid disassembling the element except when cleaning.
4. To clean the element, use clean dry compressed air on the inside of the element. Maintain reasonable distance between the nozzle and the filter.

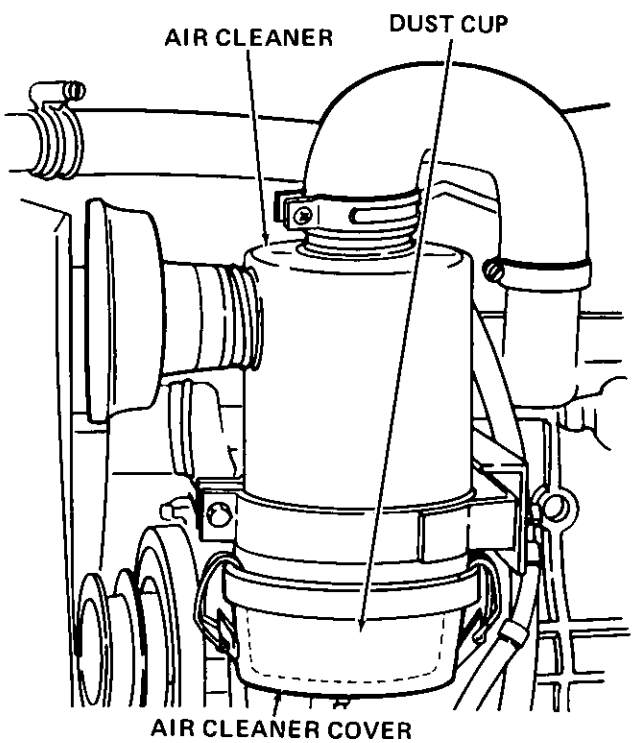


Figure 34

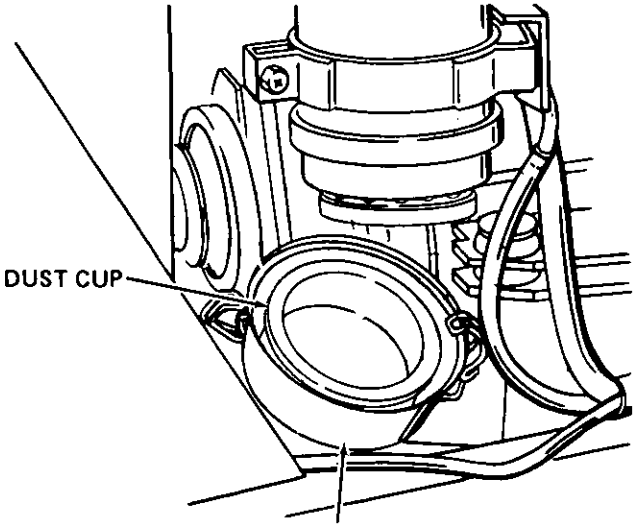


Figure 35

Air pressure at the nozzle must not exceed 100 psi (7 kgf/cm, 690 kpa).

5. When carbon or oil adheres to the element, soak the element in a mixture of 2 oz. detergent dissolved in 1 gallon of water for 15 minutes, then wash it several times in water, rinse with clean water and air dry completely. After element is fully dried, inspect inside of the element with a light and check if it is damaged. (Refer to the instruction on the label attached to the element.)
6. Replace the element every year or after every six cleanings.

IMPORTANT

Install the bottom cover with the keyed edge towards the front of tractor. If the dust cup is mounted incorrectly, dust or dirt does not collect in the cup, and dust will cause severe engine damage.

Figure 36

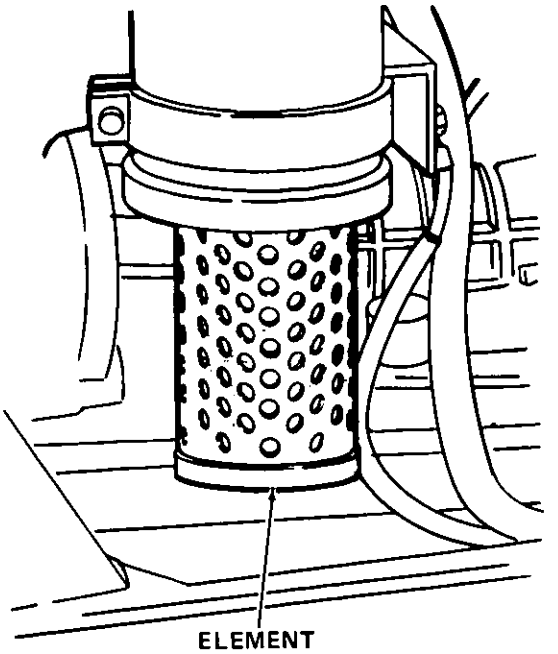


Figure 37

LIGHTS

The headlights are sealed-beam units. Refer to "SPECIFICATIONS" when replacement is necessary.

To replace the taillight lamp, remove socket and bulb from the back of the taillight by rotating socket 1/4 turn. Refer to "SPECIFICATIONS."

DISCONNECT CLUTCH

If maintenance is required, see your authorized dealer.

CIRCUIT BREAKER

If maintenance is required, see your authorized dealer.

BATTERY INFORMATION

NOTE

A battery heater is available through your authorized *Cub Cadet* Dealer.

WARNING

A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.*

***Always shield eyes, protect skin and clothing when working near batteries.**

B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.

C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.

E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.

F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.

G. As a further precaution, only charge the battery in a well-ventilated area.

DANGER

BATTERIES CONTAIN SULFURIC ACID AND MAY CONTAIN EXPLOSIVE GASES (when electrolyte has been added).

KEEP BATTERIES OUT OF THE REACH OF CHILDREN.

MAINTENANCE OF BATTERY

1. Check electrolyte level periodically (at least every two weeks). Keep the level to the split rings. Use only distilled water or a good quality drinking water. Never add acid or any other chemicals to the battery after initial activation.
2. The battery should be checked with a hydrometer after every 25 hours of operation. If the specific gravity is less than 1.225, the battery should be recharged. Maximum charge rate 5 amps.
3. Coat the terminals and exposed wire with a thin coat of grease or petroleum jelly for longer service and protection against corrosion.
4. The battery should be kept clean. Any deposits of acid should be neutralized with baking soda and water. Be careful not to get this solution in the cells.
5. Avoid tipping the battery. Even a "sealed" battery will leak electrolyte when tipped.

STORAGE OF THE BATTERY

1. When storing battery for extended periods, disconnect battery cables. Removing battery from unit is recommended.
2. Keep the exterior of the battery clean, especially the top. A dirty battery must be stored with a full charge. A dirty battery will discharge itself.
3. Check the battery with a hydrometer. The battery must be stored with a full charge. A discharged battery will freeze.

Specific Gravity	Freezing Point
1.265	-71°F
1.250	-62°F
1.200	-16°F
1.150	5°F
1.100	16°F

NOTE

All batteries discharge during storage.

4. Recharge battery whenever the specific gravity is less than 1.225, before returning to service or every two months, whichever comes first.

COMMON CAUSES FOR BATTERY FAILURE

1. Overcharging
2. Undercharging
3. Lack of water
4. Loose hold downs and/or corroded connections.
5. Excessive loads
6. Battery electrolyte substitutes
7. Freezing of electrolyte

NOTE

These failures do not constitute warranty.

BATTERY REMOVAL OR INSTALLATION

WARNING

When removing the battery, follow this order of disassembly to prevent your wrench from shorting against the frame.

Battery removal:

1. Remove the Negative cable.
2. Remove the Positive cable.

Battery installation:

1. Attach the Positive cable.
2. Attach the Negative cable.

JUMP STARTING

WARNING

Failure to use the starting procedure below could cause sparking, and gases in either battery could explode.

1. Attach the first jumper cable from the positive terminal of the good battery to the positive terminal of the dead battery.
2. Attach the second jumper cable from the negative terminal of the good battery to the FRAME OF THE UNIT WITH THE DEAD BATTERY.

TIRES

Keep the pneumatic tires properly inflated. Overinflation will cause operator discomfort. Underinflation will cause short tire life.

Inflate the front and rear tires for normal or heavy load operations as shown in the following table:

Tire Size	Pounds per Square Inch
Front Tires	
18 x 8.50-8	12
Rear Tires	
26 x 12.00-12	12

Always see that the tire valve caps are in place and tightened securely to prevent loss of air and protect the valve core and stem.

Do not overload the tractor tires by mounting equipment on the tractor which exceeds the load capacity of the size of the tires on the tractor.

Mounting Tires On the Rim

After mounting a new or old tire on the rim, inflate it to 20 pounds pressure to seat the tire bead on the rim flange. Then deflate the tire to the correct operating pressure.

NOTE

After the first 10 hours of operation, check and retorque the wheel lug nuts (both sides) to 35 ft-lbs. to make sure they have seated properly.

OFF-SEASON STORAGE

CAUTION

Diesel fuel stabilizer should be added to the fuel in the fuel tank when storing the tractor for a period longer than 30 days.

If the machine is to be inoperative for a period longer than 30 days, the following procedures are recommended:

1. Clean the engine and the entire tractor thoroughly.
2. Lubricate all lubrication points and wipe the entire machine with an oiled rag in order to protect the surfaces.
3. Follow battery storage instructions on page 27.
4. Protect tires and seat from sunlight. Inflate tires at regular intervals.

OPTIONAL EQUIPMENT AND ACCESSORIES

When you purchased your tractor, you probably had it completely equipped for your particular needs at the time. However, later you may wish to obtain optional equipment or accessories. These items and other allied equipment can be purchased from, and installed by your authorized dealer.

The tractor is used for so many different types of work, and because it is called on to operate under so many different conditions, a variety of equipment is available to adapt it to the requirements of the user. Refer to equipment catalog.

MOWING

WARNING

To avoid possible injury, do not allow anyone in the area opposite the discharge chute while mowing. Although the area has been supposedly cleared of foreign objects, small objects may be discharged by the mower.

WARNING

Never direct discharge of material toward bystanders or allow anyone near the machine while in operation.

For best results it is recommended that the first two laps should be cut with the discharge thrown towards the center. After the first two laps, reverse the direction to throw the discharge to the outside for the balance of cutting. This will give a better appearance to the lawn.

Do not cut the grass too short, as the mower will tend to scalp the grass. Short grass invites weed growth and yellows quickly in dry weather.

Mowing should be done with the engine at full throttle. Do not mow at high ground speed.

During certain times of the year and under some conditions, the mower may leave streaks of uncut material.

Streaking may occur when attempting to mow heavy weeds and tall grass. Under these conditions it may be necessary to go back over the cut area a second time to get a clean cut.

The following practices will help eliminate streaking:

1. Mow the area more often so the grass doesn't get too tall and heavy.
2. Operate the tractor at full throttle and lower forward speeds.
3. Keep the blades sharp and replace blades when worn.
4. Follow the mowing procedure shown in Figure 38.

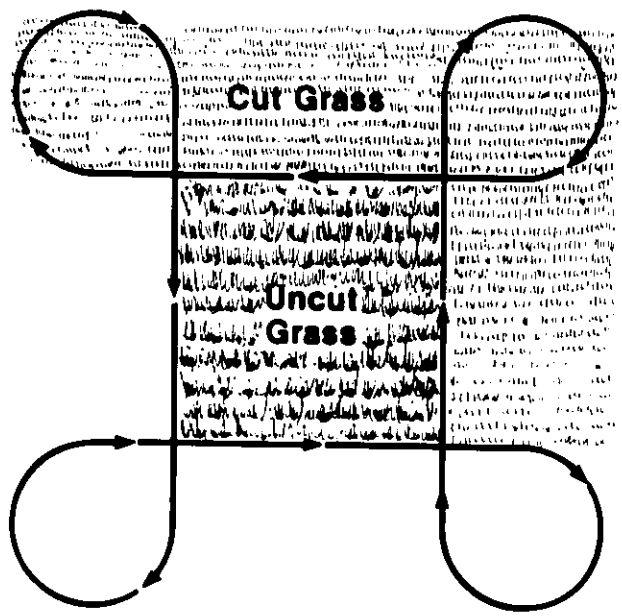


Figure 38

MAINTENANCE CHART

Operation to be performed	Before each use	10 hours or once a month	35 hours three times a season	50 hours or twice a season	100 hours or yearly	Before storage
Clean grille (front & backside) & engine inlet air screen		More often under dirty conditions X				
Check engine oil level	X					
Fill fuel tank	X					
Change engine oil			1st time & more often under dirty conditions		X	X
Change engine oil filter			1st time Thereafter change with every other engine oil change			
Replace transmission oil filter		After 1st 10 hours X		After 1st 50 hours X	Every 100 hrs. thereafter	
Check battery electrolyte level		X				
Grease front axle pivot bolt		X				X
Lubricate steering knuckles (2) and steering arm		X				X
Retorque rear wheel lug bolts		After 1st 10 hours X				
Lubricate brake shaft			X			X
Check transmission oil level	X					
Clean cooling fins & external surfaces			X			
Service air cleaner, element, and dust cup	Dust Cup X				Air Cleaner Element More often under dirty conditions	
Lubricate speed control linkage cam plates					X	X
Check and regrease front wheel bearings					X	
Radiator coolant level	X					X
Radiator Screen	X					
Pivot Bar Adjusting Bolt				X or when loose		

NOTE

Maintenance information for optional equipment may be found in the manual which is included with the specific piece of optional equipment.

TROUBLE SHOOTING

Possible Cause	Possible Remedy
WHEN ENGINE IS DIFFICULT TO START	
Fuel is thick and doesn't flow	Check if fuel shut-off valves are open. Check the fuel tank and fuel filters. Remove water, dirt and other impurities. Clean fuel filter with kerosene.
Air or water mixed in fuel system	If air is in the fuel filter or injection lines, the fuel pump will not work properly. To attain proper fuel injection pressure, check carefully for loosened fuel line coupling, loose cap nut, etc. Loosen air vent screws on base of fuel filter and fuel injection pump to eliminate all the air in the fuel oil system. Bleed fuel system, see maintenance section.
Thick carbon deposits on orifice of injection nozzle	This is caused when water or dirt is mixed in the fuel. Clean the nozzle injection piece, being careful not to damage the orifice.* Check to see if nozzle is working properly or not. If not, install a new nozzle.*
Valve clearance is wrong	Adjust valve clearance to 0.0057-0.0073 in. (0.145-0.185mm) when the engine is cold.*
Leaking valves	Grind valve.*
Fuel injection timing is wrong	Adjust injection timing. The injection timing is 21.5° (0.375 rad) before top dead center.*
Engine oil becomes thick in cold weather and engine cranks slow	Change grade of oil according to the weather (temperature).
Low compression	Bad valve or excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts.*
Battery is discharged and the engine will not crank	Charge or replace battery. Refer to battery section.
INSUFFICIENT H.P. OUTPUT	
Carbon struck orifice of nozzle piece	Clean orifice and needle valve, being very careful not to damage the nozzle orifice. Check nozzle to see if good. If not, replace with new parts.*
Compression is insufficient. Leaking valves	Bad valve and excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts. Grind valves.*
Insufficient fuel to engine	Check fuel system.
Overheating of moving parts	Clean grille insert, radiator screen, and radiator. Check oil level. Check for proper coolant level. Check to see if lube oil filter is working properly.* Check engine timing. Adjust timing 21.5° (0.375 rad) before top dead center.*
Valves out of adjustment	Adjust to proper valve clearance of 0.0057-0.0073 in. (0.145-0.185mm) with engine cold.*

***See your authorized dealer.**

TROUBLE SHOOTING

Possible Cause	Possible Remedy
Air cleaner element is dirty	Clean or replace with new element every 100 hours of operation.
Fuel injection pressure is incorrect	Adjust to proper pressure of 1991 psi (140 kgf/cm2 13.7 MPa)*
Injection pump wear	*(Do not use poor quality fuel for it will cause wear of the pump. Only use No. 1-D diesel fuel. Check the fuel injection pump element and delivery valve assembly and replace as necessary.)

WHEN ENGINE SUDDENLY STOPS

Fuel leak	Check the fuel level in tank and refill if necessary. Also check the fuel system for air or leaks.
Bad nozzle	If necessary, replace with a new nozzle.*
Moving parts are overheated due to shortage of lube oil or improper lubrication	Check engine level. Check to see if element inside the lubricating oil filter (2) has become old and clogged. If necessary, replace with new element.

WHEN COLOR OF EXHAUST IS ESPECIALLY BAD

NOTE: When engine is operating properly, the exhaust is nearly colorless.

Fuel governing device bad	Contact dealer for repairs.*
Fuel is of extremely poor quality	Select good quality fuel oil. No. 2-D diesel only.
Nozzle is bad	If necessary replace with new nozzle.*
Combustion is incomplete	Cause is poor atomization, improper injection timing, etc. because of trouble in injection system or in poor valve adjustment, or compression leakage, poor compression, etc. Check for the cause.*

ENGINE MUST BE STOPPED IMMEDIATELY IF ANY ONE OF THE FOLLOWING CONDITIONS APPLY

Speed suddenly decreases or increases	Check the adjustments and timing of injection and fuel system.*
Unusual sound is heard suddenly	Check all moving parts carefully.
Color of exhaust suddenly turns dark	Check the fuel injection system, especially the fuel injection nozzle.*
Bearing parts are overheated	Check the oil level.
Oil lamp lights up during operation	Check oil level. Check the function of the regulating valve inside of oil filter (2).* Check pressure switch.* Check filter base gasket for leaks.

***See your authorized dealer.**

SPECIFICATIONS

	1772
CAPACITIES	
Fuel tank	4 Gals. (15.1L)
Crankcase	98.4 oz. (6.2 pts.) including oil in filter.
Transmission case with hydro-drive unit mounted	8 qts. Approx.
Cooling capacity	1 gallon (2 quarts water, 2 quarts anti-freeze) [ethylene glycol]
HYDROSTATIC DRIVE	
Speed: Forward	0 to 8.64 mph (0 to 13.824 Km/H)
Reverse	0 to 4.25 mph (0 to 6.800 Km/h)
ENGINE	17 HP Kubota - D640-B
ELECTRICAL SYSTEM	
System voltage	12 volt neg. ground
Battery	39 AH, 12 Volt - 1 HPRLU
Alternator	15 amp
Circuit breaker	40 amp
Headlights, all glass, sealed beam units	Lamp No. H7610
Taillight	Lamp No. 194
BRAKES	External disc brakes, two wheels
TIRE SIZES	
Front	18 x 8.50 x 8
Rear	26 x 12 x 12
DIMENSIONS	
Tread:	
Front with 18 x 8.50-8 tires	33.0 in.
Rear with 26 x 12.00-12 tires	31.5 in.
Wheelbase	51.6 in.
Length, over-all	78.5 in.
Width, over-all	43.5 in.
Height, over-all (to top of steering wheel)	47.5 in.
Ground clearance	7.6 in.
Turning radius	36.0 in.

Specifications are subject to change without notice.

LUBRICATION TABLE

Point of Lubrication	Check at Hrs.	Change at Hrs.	Capacity	Anticipated Air Temperature		
				Above +77°F	+32°F to 77°F	Below 32°F
Engine crankcase	Check before each use	35 and 100	approx. 3.4 qts including oil in oil filter	Engine Oil SAE-30	Engine Oil SAE-20 or SAE-15W-40 Grade CD	Engine Oil SAE-10 or SAE-10W-40 Grade CD
Hydro-drive unit mounted on transmission case with filter	30	add as needed	approx. 8 qts.	*Cub Cadet* Hydraulic Transmission Fluid NOTE: If fluid is used that does not meet these requirements *Cub Cadet* will not be responsible for substandard performance. Failures due to use of improper fluid are not covered by warranty. For maximum protection, use *Cub Cadet* Hydraulic Transmission Fluid.		
Steering knuckles & front axle pivot bolt	10		Use 251H EP grease or equivalent No.2 multi-purpose lithium grease and apply two or three strokes of the lubricator or sufficient grease to flush out old grease and dirt.			
Front wheel bearings	100 or yearly			Remove front wheels and pack bearings with 251H EP grease or equivalent No. 2 multi-purpose lithium grease and reinstall wheels.		

LUBRICATION GUIDE

WARNING

Prolonged or repeated skin contact with used motor oil may be harmful. Wash skin with soap and water.

The life of any machine depends upon the care it is given. Proper lubrication is a very important part of that care.

Be certain that all lubrication fittings are assembled in place, using the lubrication illustrations as a guide.

Always lubricate the tractor thoroughly before taking it to the field. Use a pressure lubricating gun.

Be sure all fittings are free from dirt and paint so the lubricant is certain to enter the bearing.

Always force the lubricant through the full length of each bearing until it emerges at the end, carrying with it the old lubricant and any dirt that may have entered the bearing.

Miscellaneous work parts not provided with lubrication fittings should be oiled daily with a good grade of lubricating oil.

Lubricant is cheap. Use plenty of it. Worn parts can be expensive to replace.

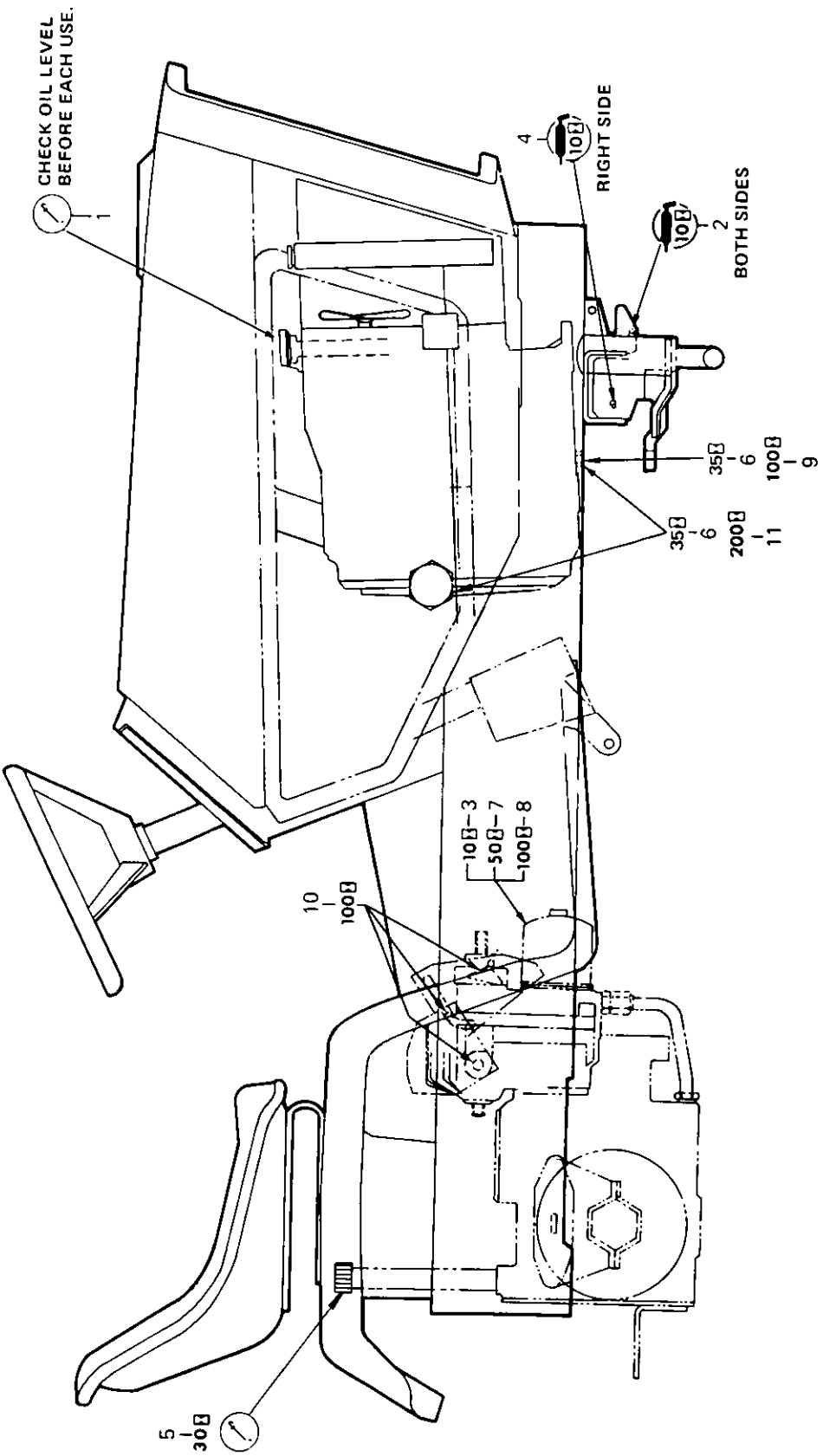
Keep your supply of lubricating oil and grease stored in clean containers, and covered to protect from dust and dirt.

Keep the lubricating gun nozzle clean and wipe dirt from grease fittings before lubricating.

The symbols in the illustration indicate the method of application and the hourly intervals to apply the lubricant.

Use a pressure lubricating gun and apply 251H EP grease (or equivalent No. 2 multi-purpose lithium grease) sufficient to flush out the old grease and dirt. Lubricate at hourly intervals indicated on symbols.

Dipstick, use to check engine oil before each use.


CHECK OIL LEVEL
BEFORE EACH USE.
1
4
10H
RIGHT SIDE
2
10H
BOTH SIDES
35H
6
100H
9
35H
6
200H
11
10H-3
50H-7
100H-8
10
100H
5
30H

LUBRICATION GUIDE

—Before Each Use

1. Engine filler cap and dipstick — Check the oil (with the engine stopped) and add sufficient new oil to bring it to the **"FULL"** mark on the dipstick. Do not overfill. Do not operate the engine if the oil level is below the **"LOW"** mark on the dipstick.

—After Every 10 Hours of Operation

2. Steering knuckles (2) (Both sides) — Use 251H EP grease or equivalent No. 2 multi-purpose lithium grease and apply sufficient grease to flush out old grease and dirt.

3. Transmission oil filter — **NOTE:** After the first 10 hours only, remove the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."** Change the transmission oil filter after 50 hours and every 100 hours of operation thereafter.

4. Front axle pivot bolt (Right side) — Use 251H EP grease or equivalent No. 2 multi-purpose lithium grease and apply sufficient grease to flush out old grease and dirt.

NOTE: It may be necessary to rotate the front axle to reach the grease fitting.

—After Every 30 Hours of Operation

5. Transmission oil level and fill tube — Check the oil with the engine stopped. Keep the lubricant up to **"FULL"** mark on dipstick (6).

NOTE: Transmission oil level and fill tube also services the following.

1. Hydrostatic transmission
2. Rear axle
3. Hydraulic lift system
4. Front hydraulic outlets
5. Power steering

—After Every 35 Hours of Operation

6. Engine oil drain plug and oil filter — While the engine oil is warm, remove the drain plug and oil filter (5) and drain all of the oil from the crankcase and oil filter lines. Replace the drain plug. Refer to **"MAINTENANCE," "FILLING THE CRANKCASE" & "OIL FILTER"** for proper oil filling procedure. Refer to **"LUBRICATION TABLE"** for the proper quantity and viscosity to use.

—After Every 50 Hours of Operation

7. Transmission oil filter — **NOTE:** After the first 50 hours only, remove the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."** Change the transmission oil filter every 100 hours of operation thereafter.

LUBRICATION GUIDE

8. Transmission oil filter.

—**Every 100 Hours of Operation**

Change the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."**

9. Engine oil drain plug.

While the engine oil is warm, remove the drain plug and drain all of the oil from the crankcase. Replace the drain plug. Refer to **"MAINTENANCE," and "FILLING THE CRANKCASE" for proper oil filling procedure. Refer to "LUBRICATION TABLE"** for the proper quantity and viscosity to use.

Speed Control Linkage

10. Cam plates

Once a year, apply a small amount of 251H EP grease or equivalent No. 2 multi-purpose lithium grease in the slots.

Miscellaneous

Brake pedal shaft

Lubricate the brake pedal shaft and linkage with eight or ten drops of engine oil.

—**After Every 200 Hours of Operation**

11. Engine oil drain plug and oil filter

While the engine oil is warm, remove the drain plug and oil filter (5) and drain all of the oil from the crankcase and oil filter lines. Replace the drain plug. Refer to **"MAINTENANCE," "FILLING THE CRANKCASE" & "OIL FILTER"** for proper oil filling procedure. Refer to **"LUBRICATION TABLE"** for the proper quantity and viscosity to use.

NOTE

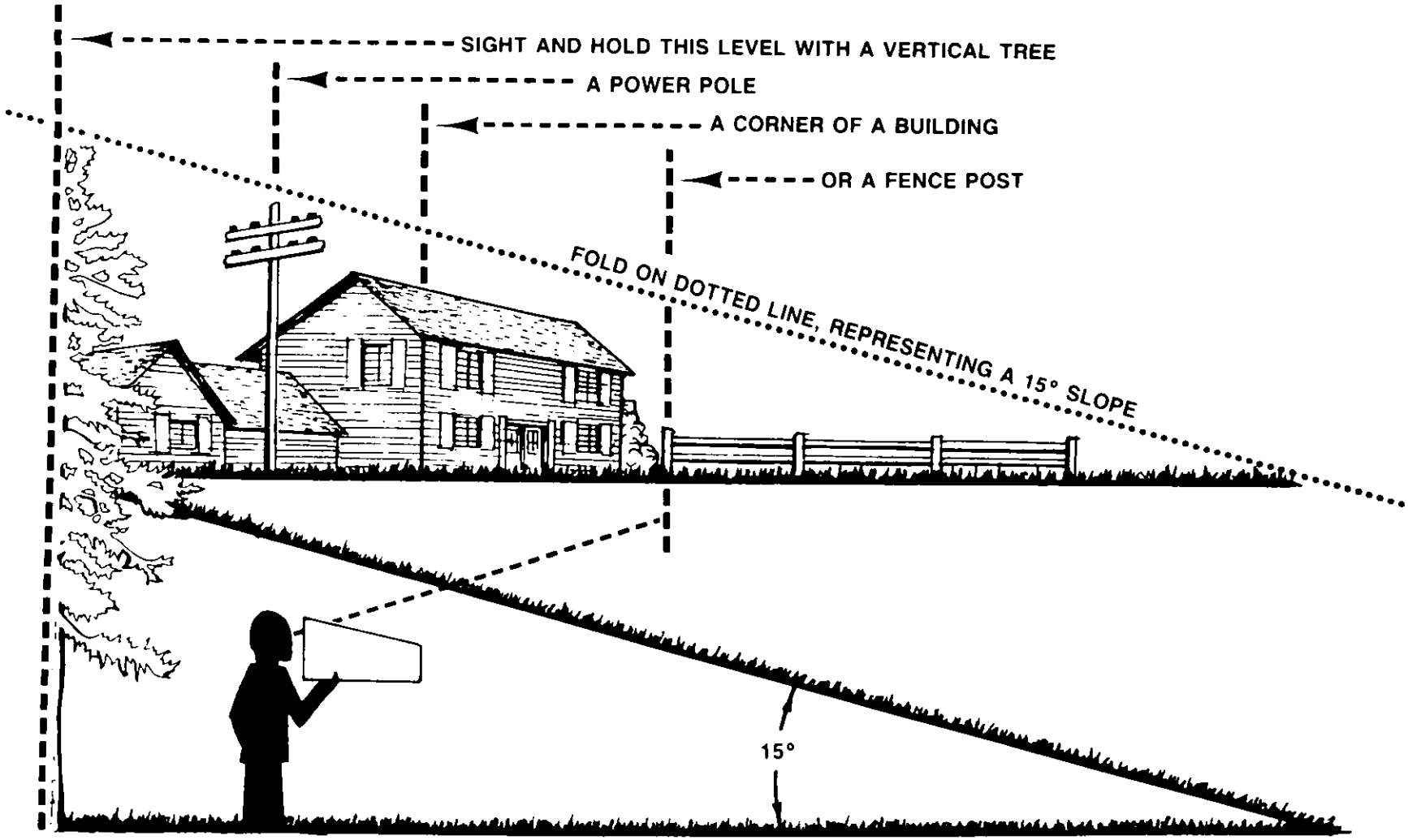
Lubrication information for optional equipment may be found in the manual which is included with the specific piece of optional equipment.

Cut Along This Line

SLOPE GAUGE

(Keep this sheet in a safe place for future reference.)

USE THIS SHEET AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.



WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2½ feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.